THIS WEEK'S NATIONAL PETROLEUM NEWS

The Recognized Authority on News, Markets and Technical Developments in the Oil Industry

FOUNDED 1909

VOL. 28 CLEVELAND, JUNE 10, 1936 NO. 24

COMING MEETINGS

Dixie Interstate Board, Adolphus Hotel, Dallas, Tex., June 15.

Pennsylvania Grade Crude Oil Assn., 13th annual meeting, State College, Pa., June 18, 19.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 29 to July 3.

Interstate Oil Compact Commission meeting, Dallas, Tex., July 31.

Michigan Oil and Gas Exposition, Mt. Pleasant, Mich., Aug. 11 to 16.

American Petroleum Institute, Division of Production, Mid-Continent District, either Tulsa or Oklahoma City, sometime in Sept.

American Chemical Society, semi-annual meeting, Pittsburgh, Pa., Sept. 7 to 12.

World Power (Fuel) Conference, Washington, D. C., Sept. 7 to 12.

Kentucky Petroleum Marketers Assoc., Brown Hotel, Louisville, Ky., Sept. 9 and 10.

Ohio Petroleum Marketers Association, Netherland-Plaza Hotel, Cincinnati, Sept. 16, 17.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., Sept. 16, 17, 18.

American Institute of Mining and Metallurgical Engineers, Cleveland, Ohio, sometime in October.

Indiana Independent Petroleum Association, fall convention, Hotel Severin, Indianapolis, Ind., Oct. 21 and 22.

National Oil Marketers Association, annual convention, Stevens Hotel, Chicago, Ill., Oct. 27 to 29.

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Published by THE NATIONAL PETROLEUM PUBLISHING CO.

Publication Office: 1213 W. Third St., Cleveland, Ohio, Tel. CHerry 7672

Warren C. Platt, *Editor and Publisher;* V. B. Guthrie, *Managing Editor;* A. E. Waldorf, *Advertising Manager*

News Bureaus

WASHINGTON, A. M. Petty, 1002 National Press Bldg., Tel. National 0654.
TULSA, Lawrence E. Smith, 904 World Bldg., Tel. 3-7132.
NEW YORK, T. W. Watson, 50 West 50th St., Tel. COlumbus 5-1516 and 5-1517.
CHICAGO, E. L. Barringer, Buckingham Bldg., 59 E. Van Buren St., Tel. Harrison 5901-2-3.
LOS ANGELES, J. N. Westsmith, 610-A Hillstreet Bldg., 815 South Hill Street.

Cable address: Plattoil, Cleveland

Subscription rate $5.00 per year in United States, Canada, and Mexico; $6.50 Foreign countries. Current copies 15 cents; for back issues more than two months old 25 cents per copy.

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John C. Askam

John C. Askam, production engineer of the Ohio Oil Co., Findlay, O., is the new chairman of the Eastern District, Production Division of the American Petroleum Institute, being elected at the recent meeting of the district members in Pittsburgh. The past year he was a vice-chairman.

Mr. Askam started in the oil industry as a youth, working with a pipeline gang. In 1912 he entered the employ of the Ohio Oil Co. as an oil field roustabout and pumper. He secured his technical training at the University of Michigan and is active in institute work in petroleum technology.

NATIONAL PETROLEUM NEWS

VOLUME 28 NUMBER 24

New Fuels Obtainable from Petroleum To Speed Progress in Aviation

By ARCH L. FOSTER
N. P. N. Technical Editor

WHITE SULPHUR SPRINGS, June 5

AVIATION in America is away with a rush and roar of new fuels and new engines to use those fuels, at a rate of acceleration little dreamed of by its pioneers, bringing new problems and opening up new possibilities for the oil industry.

Developments which will give a tremendous impetus to aviation and which will also affect automotive engines and their use were announced and discussed at the summer meeting here this week of the Society of Automotive Engineers.

With a new blending material obtainable from petroleum which is said to far surpass the present synthetic high octane number fuels, with the Army, Navy and commercial airlines spending large amounts in research to utilize the new super-fuels to the highest advantage, aviation particularly appears just about to hit a new stride. Not only will greater speeds be possible but payloads will be increased and longer flights possible with the new fuels.

Following the announcement, in 1934, of the commercial production of technical iso-octane in large quantities for making 100 octane number aviation fuels, H. E. Buc and E. E. Aldrin, of the Standard Oil Development Co. (Standard of New Jersey) announced before this meeting the development of methods for manufacturing iso-propyl ether from propylene, a blending agent superior in anti-knock properties to iso-octane.

With this material aviation fuels of 100 octane can be made, they stated, when blended with regular hydrocarbon aviation gasolines and not more than three cc. of lead. Fuel of 105 octane number or higher can be produced with the three cc. of lead, using iso-propyl ether, a value which cannot be reached practicably with iso-octane, they stated.

An increase in power output of aviation engines of up to 33 1/3 per cent per unit of weight has been obtained from the use of 100 octane number fuels, as compared to 92 octane number fuels, in engines built to take advantage of the higher octane number, says Lieut. F. D. Klein, of the Army Air Corps Material division, Dayton, Ohio. This represents 15-30 per cent higher total power output, with its correspondingly greater load-carrying capacity and longer and faster cruising range, he showed.

Aviation fuel of 100 octane number is only a stepping-stone, said Lieut. Klein, stating these fuels are merely an indication of what may be expected in the not distant future, bringing great advantages in performance of engines and aircraft, made possible by greater payloads, speeds, and cruising ranges. The experimental work necessary to find out how to utilize these super-fuels to the greatest possible advantage is so great in extent, so expensive, and of such importance to all concerned that co-operative effort is imperative, he indicated.

Without doubt the most spectacular, as well as the most enlightening and the most useful,

THE paper by H. E. Buc and E. E. Aldrin, of the Standard Oil Development Co., announcing the new iso-propyl ether blending agent for producing higher octane number aviation fuels, presented before the Society of Automotive Engineers at White Sulphur Springs on June 5, will be published in the June 17th issue of NATIONAL PETROLEUM NEWS.

This paper presents in a thorough manner the details of the properties and characteristics of the new fuel, the advantages of its use in making tomorrow's new aviation gasolines, with a wealth of tables and curves comparing it with other special fuels and blending materials.

demonstration of clever and painstaking research into the realm of gasoline engine combustion mechanism is that presented by Lloyd Withrow and G. M. Rassweiler, of General Motors Research Department, showing motion pictures of the entire explosion cycle in a spark-ignition engine cylinder. For the first time this demonstration and the results of the investigations they have conducted, have disclosed with remarkable exactness just what occurs in the engine during the explosion.

Heretofore, theories and hypotheses were relied on to explain the phenomena of the spark-ignition cycle and of what occurs when a gasoline-air mixture is burned in a cylinder. The solution of some of these problems has been halting and slow, because it appeared impossible to determine exactly the mechanism of the explosion. Consequently, it was impossible to determine the causes of undesirable reactions, such as knock, overheating, and other inexplicable phenomena with which the automotive and fuel engineers have wrestled.

These remarkable motion pictures, taken at the rate of one five-thousandth of a second for each exposure, for the first time actually show just what occurs in an engine cylinder when knocking takes place or when it is avoided. The information thus obtained confirms some of the theories which have been advanced and partially proved by earlier studies. Some ideas especially of the causes of knocking are exploded. For the first time the engineers who build engines, and those who produce the fuels to operate them, have an exact tool for the fashioning of these two complementary parts of the present day automotive power plant.

Coming in connection with revelations regarding the newer greatly improved fuels and with the advances in investigating the causes of cylinder distortion caused by uneven heating of the cylinder's different parts, the prospects for practical advancement made possible by all these developments are greater than has ever seemed possible before, so great that most of us cannot yet evaluate these prospects.

Briefly, the motion pictures of Withrow and Rassweiler were made possible by the perfection of a three-quarters inch thick fused quartz Invar-mounted window, covering the entire head of a single-cylinder engine. Unable to obtain a camera with the speed necessary for this job, they mounted 30 lenses on a disk rotated by the engine crankshaft, each of which exposed a picture or "frame" for each revolution of the shaft. A reflecting mirror directs the light from the engine cylinder horizontally through the lenses which flashed past a stationary shutter mounted at a predetermined spot.

PROJECTING these pictures at a rate practicable with the typical "movie" projector shows a slow-motion record of the entire cycle. Following the flash of the spark across the plug terminals the flame advances across the combustion chamber. In a non-knocking explosion the flame front advances toward the opposite side, but without maintaining a uniform front perpendicular to its original direction. In one instance the flame front turned to the observer's left, the last of the mixture burning not at the high end opposite the spark plug but 15 or 20 degrees to one side. This change of direction was explained as being caused by motion in the fuel mixture gases caused by the inflow from the intake valve.

Detonation is not due to a sudden acceleration in the speed of propagation of the flame front wave, these pictures disclose. Rather detonation (knocking) is caused by the sudden appearance of combustion throughout the unburned part of the fuel charge, ahead of the flame wave, a burning of the charge which is not ignited directly by this advancing wave. This spontaneous combustion is apparently produced by the compression and heating of the already heated fuel mixture by the expansion of the gases in that part of the charge burned earlier during the explosion.

The pictures show what actually occurs very plainly. When the flame wave has reached a point more or less midway of its entire travel path, light suddenly appears along the combustion chamber wall opposite the spark plug and not connected with the main flame at any point. This induced ignition, or knock, flame is extremely rapid and spreads to meet the main flame wave, the last part of the charge to burn being between the two opposing waves.

Knocking is not due to pre-ignition caused by a hot spot or spots in superheated portions of the combustion chamber, the picture proves, according to the authors' statements. They point out that pre-ignition does not begin at the same point or position in the combustion space, during different explosions. Also, in many cases, separate flame points appeared in the unburned charge, even after the knock was well under way.

In one case observed, knock flames started in two different and separated points, separate from both the original combustion flame and the first knock flame which pre-ignited. If hot spots caused knock, the pre-ignition flame would start at the same position and time and would show the same nature, during each and every explosion, with a given engine and fuel, under the same conditions.

While these details may appear highly technical, and may give a headache to the non-technical man, who is concerned chiefly with economic results of these researches, the meaning of all this is not far to seek, at least qualitatively speaking. The first necessity for solving any problem is to know just what the problem is. Only after learning what it is, after knowing what occurs to cause the problem, can its solution be intelligently and scientifically attacked. Therefore, we can now attack the problem of eliminating knock in a much more intelligent manner, since we have a method for determining definitely what occurs in the knocking engine. Heretofore, even the most aggressive investigators have been forced to use rather empirical methods, although great progress has been achieved by those methods.

Combined with this advance in research are the new methods evolved for producing radically new fuels, and for designing engines to utilize to the maximum the inherent potential possibilities of these fuels. Included also are the results of studies,

such as that reported by Macy Teetor and the Perfect Circle Co. on method of designing engine cylinders and cooling jackets to eliminate hot spots and cylinder distortion, with the consequent scuffing, wear and damage resulting therefrom.

With these new fuels and these new design principles, the knowledge of how to get the most from both of them, the possibilities, even the probabilities, of advance in the immediate future overshadows completely the remarkable progress of the last decade. Two years ago, Lieut. Klein of the Army Air Corps pointed out that, with 100 octane number aviation fuels, an increase of 15 to 30 per cent higher maximum power output for these engines is practicable, over that possible with 92 octane number fuels.

If these fuels can be boosted to 105 or higher octane number, (and 120 octane number fuel is now spoken of, glibly, by the engineers), the additional advantage increases correspondingly. The increase in power output per unit of weight possible by the increase of eight octane number in fuels is as high as 33 1/3 per cent, says Lieut. Klein. This represents a saving of 20 per cent actually obtained, in fuel economy, with a corresponding increase in the payload of airplanes. Young, in the *S. A. E. Journal*, indicated that specific fuel consumptions of as low as 0.34 pound of fuel per horsepower per hour can be obtained using 100 octane number fuels.

These advantages appear practicable only when engines are designed to "get the most" out of the potential advantages built into the fuels by the chemist. Only a few years ago specific fuel consumptions of 0.45 lb. to 0.60 lb. per horsepower per hour were the rule. As much as six cc. of tetraethyl lead has been used to produce 92 octane number fuels; the resultant corrosion effects destroyed much of the advantage obtained from the higher compressions ratios possible with this fuel. Now higher than 100 octane number fuels are available without using more than a maximum of three cc. of lead, eliminating the corrosion effects, and with much higher compressions practicable.

Because of its obvious advantages, 100 *octane number fuels will very likely be adopted soon by commercial aviation*, it is believed. This advantage shows up both in short-haul, high speed operation and in long-haul lines. High take-off power, and maximum speeds for fast schedules are paramount items in transporting passengers between cities, as for instance on the mainland. Low fuel consumption and high payload percentages are of major importance in long hauls, such as sea routes.

FOR instance, from the Pacific Coast to Hawaii, with the new fuels, the payload may be increased by more than a ton (2118 pounds) over that possible with the fuels now used. The time of flight will be reduced to 17 hours, 12 minutes, it was stated. Correspondingly, a greater cruising radius, with the same weight of fuel and the same payload ratio, will be practicable with the better fuel, a very important item in making the new and projected sea routes economically practicable.

For example, in an estimate presented before the engineers at this S. A. E. meeting, operation of a two-engined plane within continental America will show a saving of 60 pounds of fuel per hour, with a corresponding increase in permissible payload. The cost of 87 octane number (92 Army method) fuel is quoted at 14 cents per gallon, and of 100 octane number fuel at 16 cents (no tax), this margin being about that which will prevail between these two grades, it is believed. The total cost of the higher priced fuel for a given arbitrary cruise was shown to be less than for the lower priced fuel, or $11.53 to $11.75 respectively.

For a four-engined plane for trans-oceanic service, a saving of 123 pounds of fuel per hour is practicable, the estimate states, with respective total costs for the higher and lower octane number fuels for the voyage of $20.68 and $20.98.

For those airlines interested now chiefly in reducing corrosion, fuels are now available of 87 octane number with not more than one-half cc. of lead per gallon, which produces negligible engine corrosion and will cost about one cent less than 100 octane number fuel. If no lead at all is wanted, 87 octane number fuel is available, probably at about one cent more per gallon than 100 octane number fuel, it is estimated.

A new method for evaluating the knock rating of these newer type fuels is imperative, it was pointed out, which doubtless will require the development and use of a higher knock rating standard fuel than iso-octane, the value of which is arbitrarily set at 100 octane number. Already doubt exists as to the exactness of the determinations of these higher ratings, due to the apparent inaccuracy of the present methods in the upper part of the octane number scale.

This test method development, the researches to determine the best methods and engines for utilizing these fuels call for extraordinarily large expenditures of money and effort, Lieut. Klein states. He urged the continued support by the industries involved of the Detonation Sub-Committee of the Co-operative Fuel Research Committee, in the stupendous task of carrying out this vast research problem.

The Air Corps' program of research includes, for the immediate future, endurance tests of 300 hours on various makes of engines with compression ratios of about 8 to 1, at speeds corresponding to maximum output for takeoff, at somewhat reduced output for climbing, and at long-time cruising speeds which give the lowest obtainable specific fuel consumptions. For this and for other investigations for the fiscal year beginning July 1, 1936, 2,841,000 gallons of 100 octane number fuel, and 700,000 gallons of unleaded 92 (Army method) octane number fuel will be contracted for, as compared to 1,850,000 gallons of 100 octane number fuel used during the year ending June 30, 1936.

That 100 octane number fuels are only a stepping stone in the stairway of progress was the opinion voiced at the meeting, a belief apparently concurred in by the informed engineers present. Much of the attention to these fuels is correlated di-

rectly with aviation, since it is in that field that the greatest returns are possible now from these advances. The same generalizations, however, are applicable, in varying degrees of magnitude, to automotive engines and their use in transportation of freight and passengers.

Data were not presented at this meeting to show the magnitude of the advances which are practicable by the increase of octane number of motor fuels but, from general data already available, it seems likely that this advantage will approach that shown for aviation use. The profitable use of higher octane number fuels, in engines designed to utilize them to the maximum advantage, may well prove evolutionary in industrial transportation, as well as in passenger and private automobile performance.

Selling Problems and Research To Feature Penn Grade Meet

OIL CITY, Pa., June 8

TRENDS in research, marketing, production, and taxation, all vital issues in the oil industry, will feature the 13th annual meeting of the Pennsylvania Grade Crude Oil Association, to be held at State College, Pa., June 18 and 19.

The morning of the first day will be devoted to registration and a tour of the laboratories and other college buildings. The research program of the association is centered at Penn State College. The association's president, T. P. Thompson, Jr. will preside at a luncheon and will discuss "The Year Ahead". At the same session, Dr. Ralph D. Hetzel, president of the college, will deliver the welcoming address.

"Merchandising — Keep It Simple", will be the subject of the opening address of the first afternoon session by Dr. H. H. Kynett, Aitkin-Kynett Advertising Agency, Philadelphia. He will discuss the merchandising of jobber brands. In the same session, C. C. Hogg, president, National Petroleum Co., Titusville, will speak on production research problems, and Fayette B. Dow, vice-president and general counsel of the association, will conclude the afternoon meeting with "Remarks".

Daniel J. Sweeney, of Buffalo, N. Y., will preside at the dinner meeting. After the dinner, Dean F. C. Whitmore, of the college's chemistry and physics department, will tell "How We Can Use What We Have Learned". General Baird H. Markham, director of the American Petroleum Industries Committee, New York, will present a plan and a program in connection with petroleum taxes. Arrangements have been made for the radio reception of the Louis-Schmeling fight returns during the evening.

ON JUNE 19, Dr. M. R. Fenske, director of research of the college's petroleum refining laboratory, will review "Five Years of Research." He will be followed on the program by John T. McCoy, chief chemist of the Tide Water Oil Co., Bayonne, N. J., whose subject will be "The Value of Association Research".

The morning session will be concluded by an address on "The Refiner Looks at the Jobber", by Charles L. Suhr, chairman of the board of the Pennzoil Co., Oil City, and also a director of the association.

Following a luncheon, the meeting will be concluded by the report of the nominating committee, the election of directors, and the report of the resolutions committee.

As has been the custom for the last three years, the headquarters for the meeting will be at the Nittany Lion Inn on the college campus.

Landreth Urges Buyers To Pay More for Oil

FORT WORTH, June 6.—E. A. Landreth, president of Landreth Production Corp., June 4 wired principal purchasers of crude oil and executives of many of the large companies, continuing the crusade he has carried on for several weeks for correction of conditions in the industry which recently threatened the markets.

His telegram urging purchasers to increase the prices they are paying for crude by 25 cents a barrel read as follows:

June 5, 1936

"Following the lines of our previous correspondence and conversations, I am wiring you to urge that you give immediate favorable consideration to posting a higher schedule of crude oil prices.

"Recent action of the state regulatory bodies of Texas, Oklahoma and Kansas fixing lower allowable production has resulted in a decrease of 63,200 barrels in average daily production in the U. S. and the withdrawal of 1,156,000 barrels of crude oil and 1,380,000 barrels of gasoline from storage last week. The Rodessa overproduction has been stopped temporarily at least and the per well allowable reduced from 350 to 275 barrels per day.

"Also it appears that the state of Louisiana will enact effective conservation statutes at the next legislative session if they are shown that there are rewards in the nature of increased crude prices following the present curtailment in per well allowable.

"Have discussed the present price situation with Jack Blalock (representative of Texas in oil state compact meetings) at Austin on Tuesday and find that he is unwilling to support further cuts in allowable through state compact machinery until major purchasers have made good their promises to independent producers of better crude prices in exchange for effective production control.

"Production control is now administered in a generally efficent manner as evidenced by lowered allowable in compact states and cooperation of Louisiana officials shows that Rodessa hysteria was unwarranted. Chairman Thompson of the Texas Railroad Commission yesterday released statement pointing out that increasing demand for oil amounting to 12 per cent over last year and the demonstrated ability of the states to cooperate in cutting back production promised a continuing era of prosperity for the oil industry.

"In view of the favorable position of

the industry and the growing discontent at the delay in price increase I urge that you post a 25-cent increase in crude prices immediately to retain confidence of your friends and other independent producers as well as that of the oil regulatory officials who have expected that their past sacrifices and careful planning would result in increased crude prices to the end that the increased earnings now enjoyed by the integrated companies may be equitably extended to those engaged strictly in the business of oil production. I sincerely believe that this will be a very constructive move for the industry under the circumstances."

Hartwell Named Assistant Penn Grade Secretary

OIL CITY, Pa., June 8.—Appointment of S. A. Hartwell, Jr., as assistant secretary of the Pennsylvania Grade Crude Oil Association was announced by the board of directors of that organization following its May meeting.

Hartwell, now in Europe in charge of the association's overseas operations, will return to this country late in the summer where he will resume his former duties in the headquarters office at Oil City. He has been in Europe since April, 1935, and has visited most of the European countries, calling on companies handling Pennsylvania oils. Prior to his foreign service, Hartwell had been in charge of the association's field service staff.

The foreign office will be in charge of Samuel F. Pratt, now supervisor of the field service division. Pratt will sail for England late in July to spend several weeks with Hartwell in covering the European territory.

Pratt has been in charge of field staff work since July, 1935, when he came to Oil City to replace Hamilton W. Smith, who had resigned to go with the Kendall Refining Co., Bradford, Pa.

CHICAGO, May 26.—Edward B. Beale, formerly assistant manager in charge of the patent development and patent department of Standard Oil Co. (Indiana), has announced that on May 15, 1936, he opened an office for the practice of patent law in Washington, D. C.

His new office will be in the National Press Building.

Oklahoma City Field Extension Rated Down as Market Threat

By LAWRENCE E. SMITH
N. P. N. Staff Writer

TULSA, June 6

IN a week containing no outstanding wildcat discovery, attention in the southwest centered on the new part of the Oklahoma City field, where a rated potential of more than 400,000 barrels daily has been developed and where pipeline runs currently are hovering around 20,000 barrels daily.

The "bloom is off the rye," to quote the words of one operator who has several wells drilling. A near-failure was recorded more than a week ago along the northwest edge of the field and during the week a big scare arose over the appearance of salt water in one of the best wells yet completed.

This was Barnsdall Oil Co.'s No. 1 Banks-Geyer well, about a half mile east of the near failure. With established potential of 20,000 barrels, the Barnsdall well started cutting salt water and the ensuing complaint from other operators brought the state corporation commission into action, although the company had already started to correct the trouble.

The Barnsdall well originally was drilled to sub-sea depth of 5281 feet and there took its potential test. It was then deepened 19 feet and water appeared. It is being plugged back 30 feet.

The commission had permitted penetration to sub-sea depth of 5330 feet; it probably will issue an order reducing allowable depth to 5275 feet. The chief conservation officer so amended existing regulations. A committee of engineers and geologists was appointed to make detailed survey of sand conditions for the guidance of the commission and operators.

It is quite too early to dismiss the Oklahoma City extension area, as far as its probable production is concerned, for there is a lot of recoverable oil under the residences, gardens and lawns to which the 6500-foot wells are directed. However, the difficulty of holding it in line with the market requirements does not now appear to be as great as originally believed. It is expected that the takings during June will reach 40,000 barrels daily, for a great number of completions are due, each to be fitted into the daily allowable, now 4.5 per cent of potential for wells in the Wilcox sand zone of Oklahoma City.

With the feeling that Oklahoma City will not turn loose an indigestible amount of crude, the tension prevailing for several weeks has been relaxed and predictions of cuts in crude oil prices are not heard so freely. It has been customary to point to the two areas, Oklahoma City and Rodessa, as the danger spots.

This is in disregard of the numerous other fields where development is proceeding at rapid pace and deeper proration on producing wells will have to be ordered periodically through the summer. Western Kansas, southeastern New Mexico and west Texas all continue to add to their heavy potentials.

Rodessa, given an allowable of 275 barrels per well by the Louisiana conservation commissioner beginning June 1—which action was followed by setting like allowable for the wells on the Texas side of the field by the Texas Railroad Commission—provided no excitement the past week.

An apparent end of the controversy which had its court phases was reached the past week when the East Texas Pipe Line Co. (Freeman Burford interests) sold its 57-mile eight-inch system to the United Gas Service Co. This line runs from the Rodessa field to Longview,

Texas, where the East Texas Refining Co. has a large plant.

Oil which was produced by Pelican Oil & Gasoline Co. under the famous special order issued March 24 by Louisiana conservation authorities, was moved through the East Texas line. Greater part of the oil was moved to loading rack at Jefferson, Tex., and from there by tank car to Good Hope, La. Part of the oil was moved by pipeline to Port Arthur, Texas, through the Texas-Empire Pipe Line Co. of Texas system from the East Texas field for the account of Tide Water Oil Co. Recent decision by Federal Judge Bryant based on the reasoning that the special order under which the Pelican was producing a greater quantity than other Rodessa operators was an invalid order brought the Connally law into play and the movement to Port Arthur ended, inasmuch as the Federal Tender Board refused to give clearance on this oil moving interstate through the East Texas field.

What the United plans to do with the pipeline had not been announced as the week ended. Primarily a gas producing and distributing company, United has an important oil position in Rodessa merely because it owned extensive acreage when it drilled in a deep test last July. At the end of May United had 71 of the 185 wells in the Louisiana part of the field and two of the 10 on the Texas side. At the June rate, United's allowable is 20,000 barrels.

Its wells are connected to major pipelines and it had no apparent need for crude line. As no announcement has been made by the company, those who like to speculate on such matters were busy figuring it out. One theory was that the line will be used for natural gasoline. United is a large producer of natural and is at this time engaged in an expansion program involving at least $2,500,000, increasing its Rodessa plant capacities and laying extensive gathering lines to collect casinghead gas both in Louisiana and Texas. Warren Petroleum Co., Tulsa, markets the entire output of the United and it has as manufacturer and marketer control of a large volume of East Texas gasoline.

There are several possibilities of using existing gas and oil lines from either East Texas or Louisiana to tidewater for natural gasoline.

Gasoline Contract Awards On 3-Month Basis Only

WASHINGTON, June 5.—The Treasury Procurement Division has decided not to award any gasoline contracts for periods longer than three months.

Three-month contracts have been the practice since the TPD 18 months ago started buying under consolidated contracts all the gasoline requirements of federal agencies (except for the military forces).

But in calling for bids covering the period beginning July 1, the TPD asked that the companies quote prices for 6 and 12 months as well as three months. It was the intention then to make awards to the low bidder regardless of the period length.

Smaller companies, however, protested that this might mean barring them from all possibility of getting any federal business for a year. After considering these protests, officials decided to make awards only for the period July 1 to Sept. 30.

U. S. Crude Stocks Fall 1,156,000 Barrels

WASHINGTON, June 3.—Crude stocks totaled 314,325,000 barrels on May 23, a net decrease of 1,156,000 barrels from the previous week, the Bureau of Mines reported today. East Texas stocks went up 519,000 barrels. Foreign oils increased 93,000 barrels.

Grade of Crude	May 16	May 23	Change
	(Thousands of Barrels)		
Penna. grade	4,311	4,236	— 75
Other Appal.	896	911	+ 15
Lima-N. E. Ind.-Mich.	1,398	1,356	— 42
Ill.-S. W. Ind.	10,382	10,346	— 36
No. La. and Ark.	10,235	10,482	+ 247
W. Tex. and S.E. N. Mex.	29,117	28,869	— 248
East Texas	20,867	21,386	+ 519
Other Mid-Cont.	127,884	126,722	—1,162
Gulf Coast	28,800	28,549	— 251
Rocky Mountain	26,480	26,591	+ 111
California	35,114	34,839	— 275
Foreign	3,047	3,138	+ 91
Total reported weekly	298,531	297,425	—1,106
Est. unreported stocks	16,950	16,900	— 50
Total stocks	315,481	314,325	—1,156

Truck Metering Studied At Sealers' Meeting

WASHINGTON, June 9.—Several papers of interest to the oil industry are to be read June 11 at the Twenty-Sixth National Conference on Weights and Measures which opened today at the National Bureau of Standards. Titles of the papers are:

"Drainage Characteristics of Dispensers for Canned Lubricating Oil," by Ralph W. Smith, of the Bureau of Standards.

"Chicago Ordinance (requiring meters for all tank trucks) in Relation to Vehicle-Tank Meters," by James O'Keefe, Chicago inspector of weights and measures.

"Air Elimination for Vehicle-Tank Meters," by C. D. Baudom, North Carolina superintendent of weights and measures.

"Portable Testing Equipment for Large-Capacity Meters and Vehicle-Tank Compartments," by M. G. White, New Hampshire weights and measures commissioner, and John R. Booth, sealer of weights and measures at Haverhill, Mass.

General discussion will follow the reading of these papers. Manufacturers will demonstrate new developments in meters and other measuring apparatus.

To Review Gas Law Decision

TULSA, June 6.—The U. S. Supreme Court has agreed to review the decision of a three-judge federal court which last April struck down the proration orders of the Texas Railroad Commission on natural gas in the Panhandle field.

The lower court held that the commission had exceeded its powers under the law of the state; that it was attempting by proration to create a market for producers who lacked pipelines and distribution and that the statute confined the commission to prevention of waste. Date for hearing the appeal has not been announced.

FORT WORTH—J. C. Yancey, oil operator and geologist, died May 31 in a Fort Worth hospital.

Chain Store Bill May Bar Big Discounts to Consumers

WASHINGTON, June 8

THE Patman-Robinson anti-chain store bill, which Congress now seems certain to pass, may end the excessive discounts on gasoline given by some major oil companies to commercial consumers and their special deals with the tire companies.

The proposed law, however, will *not* affect the equally large discounts which federal and state governments are obtaining on their gasoline purchases.

A conference committee, meeting to iron out differences between the Patman and Robinson Bills, has recommended adoption of a simplified measure embodying principal features of both bills.

It is expected that both Senate and House will approve the conference report next week after Congress reconvenes. The bill then goes to the President for signature.

The bill, as it now stands, prohibits price discrimination between different purchasers of commodities of like grade and quality where the effect may substantially lessen competition or tend to create a monopoly or prevent competition with the person giving or benefitting from the discrimination, or with the customer of either.

A proviso immediately following states that this shall not "prevent differentials which make only due allowance for differences in the cost of manufacture, sale or delivery resulting from the differing methods or quantities in which such commodities are to such purchasers sold or delivered."

This means that quantity discounts must be based on the saving in cost of manufacture or handling the larger quantity.

The Federal Trade Commission is empowered to limit even quantity discounts based on savings in cost.

After due investigation and hearing, the FTC may "fix and establish quantity limits, and revise the same as it finds necessary, as to particular commodities or classes of commodities, where it finds that available purchasers in greater quantities are so few as to render differentials on account thereof unjustly discriminatory or promotive of monopoly in any line of commerce." Sellers would then be prohibited from granting larger discounts than fixed by the FTC.

Applying this to oil marketing—presumably, the large discounts allowed some customers under national-accounts arrangements would have to be justified on a basis of saving in cost of manufacture, sale or delivery resulting from differing methods or quantities in sales to such purchasers, as compared with sales to other consumers or resellers purchasing a like grade and quality of gasoline.

EVEN of the larger discounts granted such consumers or resellers could be justified on grounds of saving in cost on such quantities, the FTC could, if it found grounds for doing so, limit such discounts.

There is a prohobition against paying customers for furnishing services or facilities in connection with the processing, handling or sale of commodities manufactured or sold by anyone engaged in commerce, unless such payments are also offered on proportionately equal terms to all other customers competing in the distribution of such commodities.

A corollary provision forbids the seller to furnish any such services or facilities to any purchaser for resale on terms not accorded to all purchasers on proportionately equal terms.

What effect, if any, this will have on advertising allowances, lending equipment, and similar marketing practices, remains to be seen.

There is also a provision against price concessions by means of "dummy" brokers.

Provisions of this section are also extended to persons knowingly inducing or receiving prohibited price-discriminations.

Upon complaint to the FTC, and establishment of the fact that the price-discrimination exists, the burden of rebutting this prima facie case falls upon the person accused. This he may do by showing that he was in good faith "meeting competition."

Incidentally, backers of the bill say that while the provision on "meeting competition" was not in the original bill the "loophole" is too narrow to destroy effectiveness of the bill.

All of the foregoing in the Robinson-Patman bill is included as a proposed amendment of the Clayton Anti-Trust Act. Four ways in which these provisions could be invoked, are said to be: complaint and procedure before the FTC, suit by any federal district attorney, suit by a private attorney for injunction, and suit by a private attorney for treble damages.

Aside from the amendment to the Clayton Act, outlined above, the bill also includes several other provisions.

One is a provision which supporters of the bill say is to protect pending FTC cases, such as that against a large tire company involving its sales to mail order houses. Another provision exempts patronage dividends of co-operative associations from terms of the bill.

Another provision embodies terms of the Borah-Van Nuys bill making it a criminal offense, with a maximum penalty of $5000 fine and one-year imprisonment, to:

Discriminate between purchasers of like grade, quality and quantity.

Sell goods in any part of the United States at prices lower than those exacted by the same seller anywhere else in the U. S. for the purpose of destroying competition or eliminating a competitor in such part of the U. S.

Sell goods at "unreasonably low" prices for the purpose of destroying competition or eliminating a competitor.

The provision for classifying purchasers was dropped out. The anti-basing point provision is likewise missing.

Esso Trade Mark Suit to be Heard In Federal Court June 22

CHICAGO, June 8

FOURTEEN months ago St. Louis motorists read in daily newspaper advertisements that "Esso" brand motor fuel could be purchased at service stations in their city. Two weeks hence the judge in federal district court at St. Louis will begin hearings on whether the trade mark "Esso" is confused with the letters "S. O."

Suit was brought by the Standard Oil Co. of Indiana against Esso, Inc., a subsidiary of the Standard Oil Co. of New Jersey, that has been marketing in St. Louis "Esso" motor fuel brands.

The suit involves only service stations in St. Louis but the Indiana Standard is seeking a restraining order on the "Esso" trade mark for its entire middle western marketing territory.

Although old line Standard Oil companies have kept newer Standard Oil companies from marketing under a "Standard Oil" trade name, it is believed this is the first legal contest between two established Standard Oil companies over trade names involving the letters or letter combinations of "Standard Oil."

The suit goes back to April 16, 1935, when the first advertisement appeared in St. Louis newspapers announcing that "Esso" products were available at three St. Louis service stations. St. Louis motorists were informed that Esso Stations or Esso, Inc., had no connection with the Standard Oil Co. of Indiana.

Three service stations under lease, marketed "Esso" products in different sections of St. Louis. One station had been a local oil company's trackage station, and had bulk plant storage. Products were distributed from the bulk plant by a local contract hauler. The stations handled two gasoline grades, not third grade, motor oils and greases under the "Esso" trade names.

A bill of complaint was filed in federal court at St. Louis on May 15, 1935, by the Indiana Standard, the complaint charging trade mark infringement and unfair competition. Defendants were the Standard Oil Co. (New Jersey); Standard Oil Co. of New Jersey; Esso, Inc.; Hugh Scott and Francis Sheeran.

The two individuals named were charged in the complaint with selling petroleum products not manufactured by the Indiana Standard "marked with the letters S. O. in the form Esso." This action was to establish jurisdiction. Subsequent pleadings bring the action to a case between the Indiana Standard and Esso, Inc.

The bill of complaint related that the Indiana Standard owns and has promoted the trade marks "Standard Oil Company," "Standard Oil," "S O C O," and "S O." Furthermore, that the trade name "Esso" was a take off of the letters S and O, and the letters "S O" and the spelled out "Esso" were charged to be identical in meaning and sound.

The complaint further charged that the Esso Stations and equipment were painted red, white and blue, the Indiana Standard's identifying colors.

Entry of the Jersey Standard into the middle west was charged in the complaint, planned as early as 1928 and in that year "Esso" was registered in Missouri as a trade mark for petroleum products, unknown to the Indiana Standard.

The case will be heard before Judge George H. Moore. The St. Louis legal firm of Nagel, Orrick & Shepley is the solicitor for the Indiana Standard, and Everett P. Griffin will handle the case for the firm.

*National Petroleum News, April 24, 1935, pages 31, 32, 94, 95.

Glavis Again Rumored Out

By Teletype

WASHINGTON, June 9.—Refusal of Secretary Ickes and other Interior department officials to comment on the latest report that Louis R. Glavis has quit gives it considerable weight because in the past Ickes has indignantly denied such reports and insisted that Glavis would continue as director of the Division of Investigations.

New Ruling on Social Security Measure

By Teletype

WASHINGTON, June 9. — The Internal Revenue Bureau has ruled that individuals who were pensioned prior to Dec. 31, 1935, and who have performed no services for their employers since that date are not considered to be "employes" within the meaning of Title IX of the Social Security Act and the taxing provisions of that title are not applicable with respect to such individuals.

This means that amounts paid such individuals as pensions will not be included in the federal tax of one per cent on total payrolls. The ruling apparently also means that, since such pensioners are not "employes," they will not be counted as such in determining whether or not an employer is subject to the federal tax under unemployment - compensation provisions of the Social Security law.

In other words, if an employer has six persons working for him during 1936 and at the same time is pensioning four other persons who formerly worked for him, he is not "an employer of eight persons".

New Directors Named

OIL CITY, Pa., June 8.—Two new directors, representing the same companies as their predecessors, were elected to the board of directors of the Pennsylvania Grade Crude Oil Association at its May meeting.

Dart E. Hoffman, manager of the wholesale marketing department, Tide Water Oil Co. replaces Noel Robinson, and Lyle Dinsmoor, an officer of Dinsmoor & Co., St. Mary's, W. Va., was elected to the board of the association to succeed his father, James F. Dinsmoor, who died several months ago.

Automobile Association to Focus Attention on Gasoline Taxes

WASHINGTON, June 8

MILLIONS of tourists this summer will have their attention sharply focused on the amount of gasoline taxes they are paying, according to a plan adopted at the meeting here June 5-6 of the American Automobile Association's national touring board and advisory committee.

Prominently displayed on every map, tour book, directory and other types of touring material issued by the AAA will be the amount of gasoline tax in each state.

"This is a major attack on one of the most serious matters affecting motor touring today—the problem of exorbitant gas taxes," declared Wm. G. Bryant, of Detroit, Mich., chairman of the board and committee. "Already numerous inquiries received at touring counters from members planning trips show definitely that the question of high or low motor fuel taxes is an important factor in the choice of destination.

"We have a very vital interest in this matter from a touring standpoint because it is unquestionable that excessive levies are a deterrent to motor travel. For some time we have carried a table of gasoline tax rates in some of our touring material but from now on every information document going out from AAA national headquarters will have these rates set forth in outstanding manner—so that 'he who runs may read.'

"Last year the American touring army spent some $4,000,000,000 in the course of its travels. This is a golden prize well worth every effort that can be expended to attract tourist patronage.

"Many states are carrying on intensive campaigns to bring travelers within their boundaries but these activities can not be fully effective if they are offset by the unfavorable reaction caused by exorbitant tax charges on motor fuel."

The purpose of the AAA meeting was to plan to handle what promises to be the greatest travel wave in history. Reports indicate that the 1936 travel season will outstrip by 10 per cent or more even the record of 1935 when 37,000,000 Americans in 11,000,000 automobiles took to the open road.

As evidence that 1936 will be a banner touring year, the AAA official cited increases of 15 to 20 per cent already in travel to National Parks, forecasts of 13 per cent larger gasoline consumption in June, and increased requests from the AAA for tour routings. The indications are

The tax burden the oil companies carry both on their automotive equipment and on the motor fuel this equipment transports was graphically demonstrated at the Tax Exhibit of the American Petroleum Industries Committee at the Tulsa Oil Exposition. The sign on the front of the truck reads as follows: "Taxes Paid on This Truck, One Year; Federal New Car Tax—$17.20, State New Car Tax—$7.45, Federal Tire Tax—$7.74, State Sales Tax on Tires—$1.79, Federal Tube Tax—$1.38, State Registration Fees—$52.74, State Sales Tax, Tubes—27 Cents, Certificate of Title—$1, State Sales Tax, Lubricating Oils—$1.89, Federal Gasoline Tax—$20.00, State Gasoline Tax—$80.00, Federal Tax Lubricating Oils—$7.38, Tag Agent's Fee—50 Cents; Total $199.34. The other sign reads: "In One Year $30,000 Taxes Will Be Paid on the Gasoline Hauled by this Truck."

that more people will travel this year and that the average mileage will be greater, Mr. Bryant said.

Transcontinental trips are becoming more popular. Trailer tourists are requesting routings for trips covering the whole country and lasting a year or more, he said.

Expect I. C. C. Hearing Before Rail Rates to Southeast are Cut

TULSA, June 6

REDUCTIONS in freight rates on gasoline and kerosine from Baton Rouge, La., and Gulf ports to destinations south of the Ohio and east of the Mississippi rivers, as proposed by the rail carriers at Atlanta June 1 and 2, would be so drastic and would involve the entire rate structure so thoroughly there is little likelihood of the proposal in its present form being put into effect.

That is the opinion of spokesmen for oil companies in the Mid-Continent. The opinion is not confined to executives of companies opposed to, or who are neutral to, the proposed reductions. Those who are highly in favor of the reduction doubt if anything along this line will become effective in the near future.

It is pointed out in the first place that any action the Southern Freight Association might take would be contingent on what the Southwestern Freight Bureau does regarding the proposal to reduce ratio. It is reported now that the same or a similar proposal is to be docketed soon with the Southwestern Bureau for public hearing, probably at St. Louis.

Even if the proposed reduction should be put in by the carriers, most traffic experts believe the Interstate Commerce Commission would call a hearing as a result of the large amount of opposition and suspend the proposed new rate scale pending completion of that hearing.

The fact that spokesmen for the refiners doubt there will be no definite action in the near future does not mean they are not interested in the proposal. They are, some more than others.

The proposed scale, for example, would open up a considerable portion of the southeastern marketing area to independent refiners in Louisiana, Arkansas and East Texas. Particularly would it be an advantage to those refiners who are now all-rail shippers and who are not in a position to finance movement of their products into that area by water in competition with the major companies.

It is pointed out that the southeast is the normal, natural marketing territory for the Louisiana-Arkansas and the East Texas refiners but that they have been choked off by the high rail rates and the water transportation competition of the larger companies.

THE new rate scale, it was pointed out, would let those refiners get east of the Mississippi and south of the Ohio rivers as far as a line drawn from Cincinnati southward through Chattanooga, Birmingham, Montgomery and to Mobile. At the present time the Shreveport refiners for example, can get to one two or three points around Nashville, one or two in Kentucky and a few in Mississippi.

Not all the refiners who seemingly might benefit by the reduction are in favor of the proposal. At least one refiner who is an all-rail shipper pointed out that at present he does not have much distribution in the southeast; that because of the present freight rates he has concentrated in the Arkansas-Louisiana-Mississippi area. If the rate reduction is put into effect, he believes it would naturally spread to the southwestern lines and permit Oklahoma, and Texas refiners to move into his present marketing territory. He fears he would lose more there than he would gain in the southeast.

Even the Kansas refiners are showing some interest in the matter because they believe that, if such a proposal is put into effect, the entire freight rate structure would be so broken down it might lead to the reopening of the now famous Mid-Continent case, or perhaps the filing of a new similar case.

It appears, therefore, that if this or a similar proposal is docketed with the Southwestern Freight Bureau for hearing at St. Louis in the near future, the Mid-Continent refiners will be well represented by traffic men and company officials expressing a divergence of opinion on the proposal.

Gasoline Demand Up 10% In First 4 Months

By Teletype

WASHINGTON, June 9.—Domestic gasoline demand for the first four months of 1936 was nearly 10 per cent higher than last year, a report by the Bureau of Mines indicated today.

For the January-April period, the demand figure this year was 134,342,000 barrels as against 122,573,000 barrels last year. April demand totaled 38,825,000 barrels, an increase of 8 per cent.

Domestic demand for gas oil and fuel oil has increased even more, totaling 142,554,000 barrels for the first four months of 1936, a gain of more than 12 per cent over last year.

Crude production in April averaged 3,016,000 barrels—the first time in history that the 3,000,000-barrel mark has been exceeded, according to the Bureau of Mines. Louisiana, with Rodessa field contributing 50,200 barrels, set a new record of 215,000 barrels daily in April. All other important producing states registered increases.

Motor fuel exports increased to 2,532,000 barrels in April. Gasoline stocks declined 1,000,000 barrels in April to 73,509,000 barrels, representing the first stock decrease since October.

Eastern Field Recovery Methods Discussed by Engineers

PITTSBURGH, May 5

THE topic uppermost in the minds of a majority of those attending the meeting of the eastern district, Division of Production, American Petroleum Institute, in Pittsburgh, June 4 and 5, was the problem of state and national taxation programs as they affect the petroleum industry.

It was fitting, therefore, that the meeting should be opened on this note and a piquant quality was added by the fact that America's Number One Single Taxer, Mayor William N. McNair, of Pittsburgh, should sound it.

The mayor's rather rambling address of welcome was shot through with the homely humor for which he is famous but he made it plain to his auditors that, if he had his way, he would relieve the oil business of the duties of tax collection by doing away with the multitude of special taxes now in force and would, in consequence, return to the oil business most of the time and energy it now spends in collecting taxes, but a small portion of which are applied to needs localized in the vicinities of points of collection.

The morning session June 4 was devoted to a discussion of the problems incident to deep drilling for oil and gas. The opening paper by Frank M. Brewster, president and general manager of the Belmont Quadrangle Drilling Corp. of Bradford, Pa., dealt in detail with the application of pressure control to the drilling-in of deep high-pressure gas wells in the Tioga field of northern Pennsylvania and southern New York.

Much difficulty was experienced by operators in that field in getting tools out of the hole after drilling in large gas wells with cable tools. The Belmont Quadrangle company introduced the practice of drilling in these wells with light rotaries and under pressure control, thereby reducing hazards and lowering costs.

Mr. Brewster's paper dealt exhaustively with technique and difficulties under both old and new practice and the lively discussion which followed was evidence of the widespread interest in the subject on the part of operators in eastern fields who are already face-to-face with a deep drilling program of considerable magnitude as a result of widely distributed discoveries of gas in the Oriskany sand in the Appalachian District.

DR. K. C. Heald, staff geologist, Gulf Oil Corp., Pittsburgh, presented a most illuminating discussion of the problems encountered in drilling deep wells in various parts of the world. The causes of these problems were traced and the methods employed in the solution of each were described. Some forecast of problems yet to be encountered was ventured. The merits of rotary and cable tool methods of drilling at depths of 10,000 feet or more were given for various types of rocks and for various producing districts.

T. W. Phillips, Jr. president of the T. W. Phillips Gas & Oil Co. of Butler, Pa., delivered a forceful analysis of the present taxation situation; how it came about, at what points it violates sound principles, where, in his opinion, it will lead.

"When tax figures reach astronomical proportions," he pointed out, "and when they are levied with ruthless discrimination, ... we are being taxed into state socialism." Mr. Phillips called upon business men to assume the leadership in the tax fight which is their public obligation.

P. H. Curry, president of the South Penn Oil Co., Pittsburgh, who, at last year's meeting, sounded a warning of the dangers which eastern operators were facing in the crude market, presented a paper (read by R. W. Oldham) on "Hopeful Present Day Signs for Eastern Oil and Gas Production."

He reviewed the energetic and effective progress which has been made in improving and advertising the products made from Appalachian crudes and the effective manner in which eastern producers have capitalized to their advantage the general business improvement which has taken place during the past year. Of particularly beneficial effect, Mr. Curry pointed out, has been the application of sound economies in production practices in the fields of the Appalachian District.

The sessions on June 5 were somewhat more technical in character and, in addition were designed to bring the membership of the division up to date on outstanding developments in these areas of the eastern fields outside of Pennsylvania, New York and West Virginia.

N. M. Wilder, of the Kentucky Department of Mines and Minerals described the operations which have been conducted in repressuring limestone producing areas in the eastern part of that state. Excellent records have been kept of these operations and data has been developed which will prove of inestimable value when secondary recovery methods are later called for in limestone producing areas east of the Mississippi river.

Thomas R. Weymouth, vice president of Columbia Gas & Electric Co., Pittsburgh, delivered an illuminating and valuable paper on the principles and uses of various types of meters in measuring gas. Mr. Weymouth is an outstanding authority in his field and his paper was succinct and amazingly non-technical for what is essentially such a technical subject, and complete in that it set forth in bold relief the outstanding developments in the field to date.

W. M. Peck, assistant general manager of the Pure Oil Co., Saginaw, Mich., set forth the production problems which have been met and dealt with in Michigan particularly during the past year, in a paper which was a worthy successor to that

presented by Dr. R. B. Newcombe at last year's meeting. Of particular interest to those attending the meeting were the methods employed by Michigan operators in cleaning paraffin out of tubing and casing by the use of solvents and the methods now under trial for disposing of oil field brines to prevent their being turned into the streams of the state.

Dr. Wilbur Stout, Ohio state geologist, presented a paper on "The Petroleum Geology of Ohio." It is seldom that so broad a subject has been treated so brilliantly, so tersely and yet with such completeness. His concluding statement is worth repeating: "Although more than 150,000 holes have been drilled in Ohio (area 41,262 square miles), the state is yet far from depleted in either oil or gas. Certainly the best pools are gone, but much likely territory remains for future work. As yet, recovery by mechanical methods has scarcely started. Thus Ohio has had a long and satisfactory record in the production of the natural hydrocarbons which, without much doubt, will continue, in some measure, far into the future."

The annual stag dinner was held June 4. Officers of the Eastern District, Production Division of the institute, for the coming year are J. C. Askam, Ohio Oil Co., Findlay, O., chairman; E. C. Eckert, Hanley & Bird, Bradford; George Witmer III, Witmer Oil & Gas Co., Pittsburgh; Fred Benkert, Peoples Natural Gas Co., Pittsburgh; G. L. Hassler, Pennsylvania State College, and J. J. Schmidt, East Ohio Gas Co., Cleveland, vice-chairmen; and Christy Payne, Jr., Peoples Natural Gas Co., Pittsburgh, secretary-treasurer.

Proper Spacing of Wells Principal Cost Factor

PITTSBURGH, June 4. — PROPER well spacing and the development of the acreage factor in proration are the most important elements in reducing development and lifting costs of oil companies, Axtell J. Byles, president of the American Petroleum Institute, told the annual meeting here of the Eastern District of the institute's Division of Production.

"Were the subject given the study which it deserves," he said, "I apprehend that we should find that proration of production is not the cause of increasing investment accounts without proportionate increases in either dollar income or volume of production, but that the real cause for complaint is against continuing intensive competitive drilling.

"Development and operating costs can be reduced and full production obtained by wider spacing of wells, more co-operative development programs and, where possible, by unit operations."

Pointing out that responsibility in this connection rests both upon the state authorities and upon the industry itself, Mr. Byles said: "If it be in the public interest to produce the most oil at the least expense, it equally is to the interest of the industry to minimize, as much and as rapidly as possible, the tremendous expenditures in unnecessary drilling which diminish the allowable per well under proration and retard the recovery of capital—to say nothing of profits."

MR. Byles told his audience of producers that their branch of the industry holds the key to the stability of the oil industry generally. He pointed out that crude oil production is 400,000 barrels a day above this time a year ago and that runs to stills are more than 300,000 barrels in excess of a year ago. Gasoline stocks, he said, are approximately 11,000,000 barrels greater than a year ago.

He told the industry to consider the effect of a surplus of gasoline stocks next winter, when demand for fuel oil of itself may lead to the production of greater volumes of gasoline than demand calls for.

In conclusion, Mr. Byles deplored the trend in legislation by means of which individual industries attempt to relieve themselves of their distress by penalizing other industries. Along this line he said:

"For example, the railroads are no more justified today in trying to impose unjust and uneconomic burdens upon highway transportation than the canals were a half century ago in trying to prevent the growth of rail transportation; or than the railroads, at about a like period, were justified in trying to deprive the public of the cheaper means of transportation provided by pipe lines.

"Nor are certain elements in the coal industry justified in trying to impose special additional tax burdens upon the petroleum industry and its consumers to meet competition, any more than the activity is justified which looks to legislation to compel the use of alcohol in motor fuel.

"The sole justification for the existence of any industry is public service, which means giving the most of the least. In this way, and in this way only, can progress be made and prosperity attained and retained. If the railroads can furnish better transportation at less cost for that portion of the tonnage now moving by pipe line, tank ship, and motor truck, by all means they should be permitted to do so.

"If the coal industry can furnish better power and heat than the petroleum industry at less cost and with equal convenience to the masses of the people, by all means it should be permitted to do so.

"If alcohol, or any other product of the farm, can furnish better motor spirits, lubricating oil, power, or heat, at less cost to the public, it should be permitted to do so. In fact, if, as, and when these things can be done, they should be done and will be done, whether anyone likes it or not."

Union Reports Higher Pay for Oil Worker

TULSA, June 6.—No outstanding business was transacted in the seventh biennial convention of the International Association of Oil Field, Gas Well and Refinery Workers of America, held in Tulsa this week.

A resolution was adopted tentatively pledging the support of this union to John L. Lewis, president of the United Mine Workers, at the coming convention of the American Federation of Labor, at Tampa, Fla. Lewis is staging a fight for union organization along industrial lines, opposing the traditional craft unions which the A. F. of L. insists upon retaining. The oil workers union already fits the program of Lewis, including as it does field men and refinery workers.

Some mild bickering occurred over the question of "communism." This was provoked partly by an address by Gen. Plutarco Elias Calles, former president of Mexico and recently exiled from that country. He asserted that communism is threatening the industrial and economic life of Mexico. This drew a retort from Mexican officials.

After two days, the convention was closed to all except accredited delegates. One reason advanced for this was that several "spies" employed by oil companies were present.

Harvey Fremming, president of the union, asserted that great progress had been made in the past two years as the result of the NRA and the Wagner labor law. Compared with 1929, he said, average wage rates have increased 30.5 per cent, while living costs have declined 18 per cent. The comparison was for 10 union districts covering Arkansas, California, Colorado, Montana, New Mexico, Wyoming, Illinois, Indiana, Michigan, Ohio, Kansas, Kentucky, West Virginia Louisiana, New York, Pennsylvania, Oklahoma and Texas.

Two years ago, Fremming said, when the last convention was held, employment agreements were in effect with only two small companies while now the union workers have agreements with 32 companies.

Harvey C. Fremming, principal organizer of the union and its president for many years, was re-elected. J. L. Coulter, who was secretary and treasurer during the code days and who appeared at numerous code hearings, was elected executive vice-president. E. C. Conarty, Hammond, Ind., was elected secretary and treasurer.

The convention voted to hold its national meeting annually instead of each two years, beginning with 1937. The next convention will be in Kansas City.

Shell Discovery Rated Important Addition to Crude Reserves

LOS ANGELES, June 5 "YOU see, the old State's not dead yet and geologists are still needed to discover oil in California," was a remark passed by an eminent geologist when discussing an important strike by Shell Oil Co. in the floor of the San Joaquin Valley, eight miles east of Elk Hills and 12 miles southwest of Bakersfield.

The wildcat, known as Stephens No. 1, is on section 29, 30-26 and part of a 5000-acre block of Kern County Land Co. property held by Shell in that area. The Texas Co. has 480 acres two miles west and Ohio Oil Co. is drilling a well four miles to the north. Because the acreage is so closely held, the discovery presents no immediate problem to the voluntary curtailment program on the west coast.

Swabbing started the flow on June 2 from a depth of 7888 feet with casing set to 7800 feet. An initial 24-hour gauge showed an output of 740 barrels of 61.4 gravity oil and 12,450,000 cubic feet of wet gas, which had a gasoline content of approximately a gallon and a half per thousand cubic feet.

Production was through a 34/64-inch tubing bean and pressure was reported as 1900 pounds on the tubing and 2200 pounds on the casing. Until tankage could be built, the oil was being trucked out of the field.

Geologists are of the opinion that Shell's strike proves an entirely new structure in the floor of the San Joaquin Valley where top soil covers surface indications. The territory was carefully geologized before being drilled and conclusions reached here were checked by extensive geophysical surveys.

The condensate from the well is amber in color and has a strong odor of kerosine. In these and other respects the oil conforms to that obtained from the top of the Kettleman Hills North Dome and North Belridge structures. As was the case in these fields, it is anticipated wells drilled on the flanks and plunge of the structure opened up by Shell will be more prolific producers of oil.

It is considered important that the producing sand in this well was found in Miocene formation. With the exception of Kettleman Hills, Coalinga, North Belridge and one or two relatively unimportant areas, production in the San Joaquin Valley is found in the Pliocene. Oil in the above fields comes from the contact point between the Miocene and Eocene or in the Eocene. Shell is understood to have penetrated the Miocene at 7200 feet, or 600 feet above the oil sand.

Deeper drilling equipment developed in the past few years has permitted extensive exploration work aimed at developing production in the Miocene in the floor of "the Valley." Portable coring rigs and geophysical surveys have been used in exploring a wide belt paralleling known reserves in the highly folded compression areas along the west side and accumulations against fault zones on the east side. Numerous gas deposits were developed, but Shell's discovery is considered the most important addition to

Pacific Coast crude reserves in recent years.

Another test on the Pacific Coast that is being watched carefully is General Petroleum Corp.'s Terminal No. 1, a wildcat across the street from the Ford Motor Co. plant in the Los Angeles Harbor District. Reports from the field indicate oil sand had been cored below 2500 feet. A water test was being made over the week end with the bottom at 2700 feet. A production test may be made early next week.

Oil Tanker Building Gaining, Replacements Big Factor

OIL tanker construction by American companies has shown a steady increase the past 12 months, particularly during 1936. At present 13 are under construction or have been contracted for, according to Lloyd's Register of Shipping.

The list includes four steam tankers for the Gulf Oil Corp.; two for Socony-Vacuum Oil Co.; one for Atlantic Refining Co.; one for Standard Oil Co. of New Jersey, four for Pan-American Petroleum & Transport Co. and one diesel tanker for the Sun Oil Co.

According to Lloyd's report, total U. S. tanker building actually under way in the quarter ended March 31, 1936, was 45,300 gross tons, compared to 28,200 gross tons in the previous quarter. Tanker construction in other countries also showed an increase and represented about one-third of the entire current production of merchant ships.

Tanker construction by countries during the first quarter of 1936 and the last quarter of 1935 according to Lloyd's is as follows:

	March 31, 1936 Gross Tons	Dec. 31, 1935 Gross Tons
Great Britain and Ireland	160,670	114,040
Germany	148,100	101,700
Holland	73,485	47,835
Sweden	63,700	52,264
United States	45,300	28,200
Japan	45,065	29,665
Denmark	26,200	25,200
France	15,456	16,736
Other countries	22,920	22,920
World total	600,896	438,560

Of the tonnage actually under construction at the end of March, 1936, motorships accounted for 537,071 tons, while steam tankers totaled 63,825 tons. However, of the U. S. construction approximately three-fourths was steamer building, only one motor ship being under way.

Accompanying the growth in tanker building during the past year was an increase in the construction of oil engine for marine use. During the quarter ended in March, 1936, the total indicated horsepower of such engines being built, according to Lloyd's, advanced from 840,261 I.H.P. to 962,530 I.H.P.

Several factors have caused the increased activity in oil tanker building, according to shipping officials, the chief one being obsolescence in the present tanker fleet. In the 1935 annual report of the Standard Oil Co. of New Jersey, operators of the largest American fleet, it is reported that the present average age of all tankers under the U. S. flag is 16.5 years and that an extensive construction program is called for in the near future. Shipping authorities generally estimate the average useful life of an oil tanker at 20 years.

Several authorities have estimated that approximately 10 to 11 tankers a year should be built to maintain the American fleet at the correct tonnage, allowing for the scrapping or laying up of obsolescent vessels. These estimates allow for the new boats being faster and probably of larger tonnage than many of those being replaced. The present fleet consists of a few over 300 vessels.

A check of the present American tanker fleet shows that about 80 per cent of the boats were put into service from 1916 through 1921, which would mean that they should be replaced (allowing the 20 year service period) between 1936 and 1941. Of these boats the largest number were put into service in 1920 and 1921 with 16 and 85 additions respectively to the fleet.

About 20 tankers were put into service between 1929 and 1935, but of these only two or three were built in 1933 and 1934. During those years building almost ceased but improved considerably in 1935. Seven boats of the present fleet were launched in 1912.

Other factors entering the picture in the need for more tankers are increased consumption of petroleum products, particularly the light fuel oils suitable for home burner purposes, and the federal load line law.

Consumption of light fuel oils during the winter months has increased so much during the past few years that this season now is the time when boats for coastwise service are most in demand and charter rates are highest. This enables companies to maintain a better balanced movement between the summer and winter seasons.

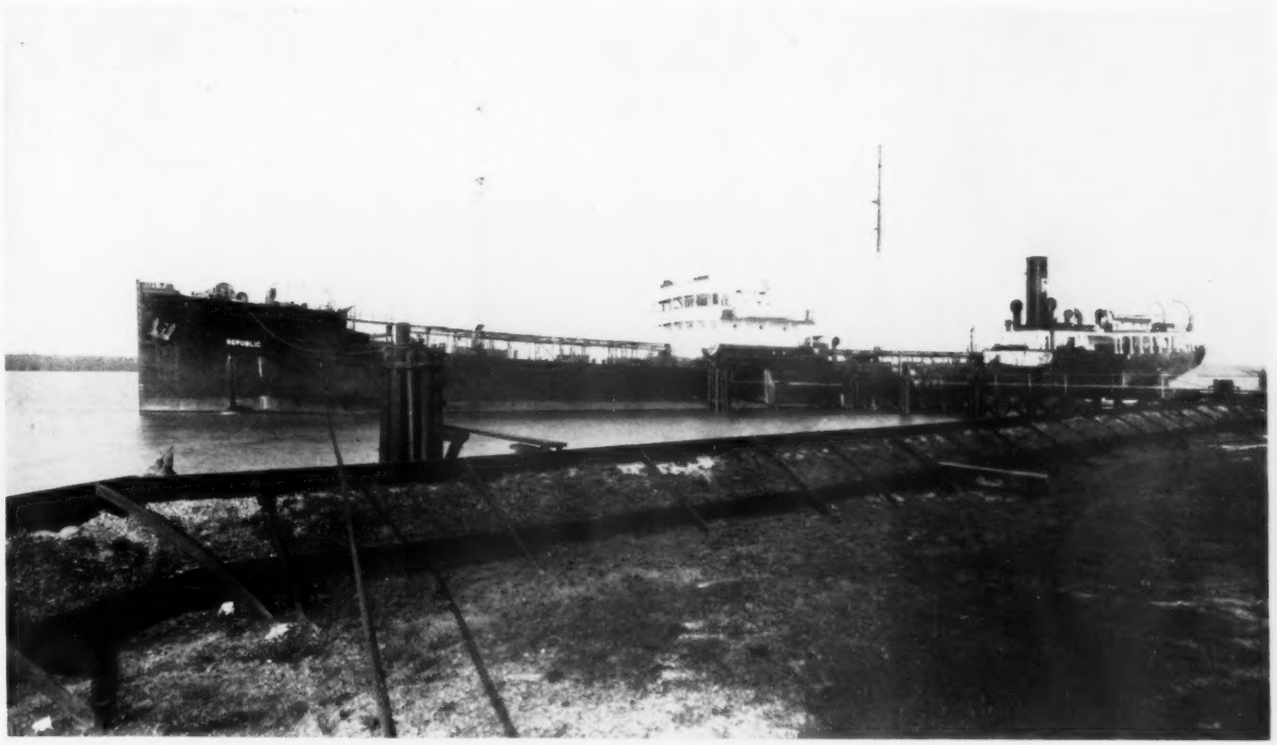
Several tanker officials estimated that the federal load line law, which became effective in December, 1935, had increased the number of boats to haul the same amount of oil by around three per cent. This law prohibits boats from being loaded above their load line, a practice which previously was followed by many in the trade.

Barge Regulation Hearing

WASHINGTON, June 6.—A hearing will be held June 29 at the Department of Commerce on the regulations proposed to be issued under the Bland Law (HR 8598) enacted by Congress last year covering all vessels transporting gasoline, kerosine, oil or other inflammable cargoes on rivers, lakes, canals, waterways or other waters of the United States.

Copies of the proposed regulations may be obtained by writing to the Marine Inspection and Navigation Service, Department of Commerce, Washington, D. C.

Ocean tanker from Texas Gulf tied up at City Point Terminal on the James river, near Hopewell, Va. This is one of the farthest points inland a tanker of this size, 52,000 barrels, can reach. Only a short pipeline is needed to reach storage tanks on the river bank. Last winter, this tanker smashed through ice to City Point, which was the only terminal open



Tankers, Barges and Finally Trucks Serve Southeast its Gasoline Supply

By **A. M. PETTY**
N. P. N. Staff Writer

WASHINGTON, June 4

MORE than a billion gallons of gasoline was brought into the six southeastern states by coastwise tanker last year — 1,230,000,000 gallons passing through terminals at nine seaports from Norfolk to Mobile.

That is equivalent to about 80 per cent of the total gasoline consumption in these six states. Counting in the smaller ports, with their receipts by tanker and barge, the volume of gasoline coming in by water just about equals total consumption in the southeast, which was 1,407,070,000 gallons in 1935.

The southeast, with high railroad freight rates from southwestern refining points and the Gulf and Atlantic coasts, furnished a perfect setting for oil companies to take advantage of low-cost water transportation and its complement — truck transportation.

Each state in this section has at least one deepwater harbor capable of handling the largest ocean-going tankers. These harbors are linked to smaller ports by rivers and waterways. Hard-surfaced roads radiate in all directions.

Sixty per cent or more of the gasoline moving from water terminals in some southeastern states goes by transport tank truck — huge, six-wheeled tractor trucks, hauling 4000 gallons to points 300 miles and more distant. Petroleum products moving on rivers and waterways constitute the bulk of the water-borne traffic.

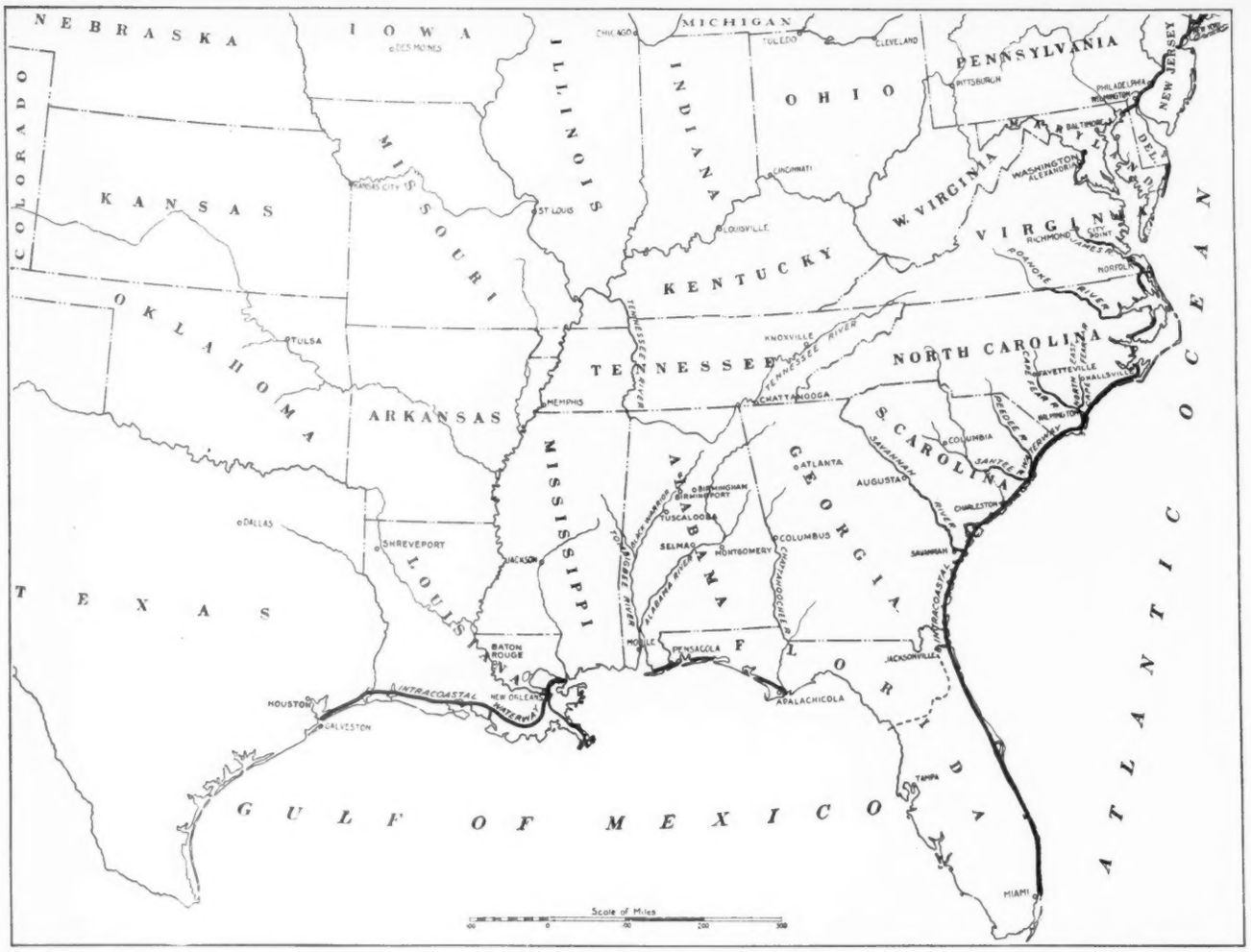
The southeast is the principal battleground in the fight of the railroads to recover the oil traffic.*

In North Carolina, rail rates on gasoline from Wilmington have been twice slashed in less than a year to meet truck competition but the truckers show no signs of weakening. Lower rail rates are in the making for shipments out of Norfolk, Charleston, Savannah and other South Atlantic ports.

Rail rates into Alabama were cut several years ago to meet barge competition but the water movement to Birmingham, Montgomery and other inland cities in 1935 was nearly double that for 1934. The railroads are now proposing deeper rate cuts as more oil companies threaten to start barge operations in Alabama.

Barge movement of gasoline is increasing rapidly; new routes are being opened up. Water terminals are being built in cities which have had no river traffic for a generation. Each

*This fight has now taken the form of definite proposals by the railroads for rate reductions from Gulf ports into the southeast. See news articles in June 3rd issue of NATIONAL PETROLEUM NEWS as well as in current issue.—Ed.



The map shows the Intracoastal Waterway and the navigable rivers by means of which the southeast, from Virginia down and including Alabama, is served almost entirely with its gasoline by water movement from refining points. From the water terminals the gasoline is transported by truck as much as 300 miles to its final destination

new water terminal means further expansion of trucking operations.

Barges began hauling gasoline upriver from Wilmington to Fayetteville, N. C., in March of this year.

Just recently, citizens of Columbia, S. C., enthusiastically greeted the first gasoline barge and towboat arriving from Charleston. This was the first navigation over this route since stern-wheeled steamers, with decks piled high with bales of cotton, plied the Congaree River many, many years ago.

View of the wharf and a few of the tanks at the Richmond, Va., terminal of the James River Oil Co. By its own towboat and barge, this independent company moves gasoline 100 miles up the James river from its ocean terminal at Portsmouth, Va.

From Augusta, Ga., 200 miles up the Savannah river from the sea, trucks are hauling gasoline into the Carolinas and northern Georgia.

Large tankers from the Texas Gulf Coast are docking at City Point Terminal on the James River, Va., nearly 100 miles inland from the ocean. Trucks haul out of this terminal for several hundred miles.

A large and increasing percentage of the billion and a half gallons of gasoline consumed in the southeast annually never sees the inside of a tank car from refinery to filling station pump.

With gasoline markets reflecting rail rates, many independent oil jobbers have turned to trucking their supplies from

ocean terminals. For some, this saving of a quarter or half cent a gallon has meant the difference between profit and loss. Oil transportation companies, some owning 30 or more transport tank trucks, have been hauling under contract for the major oil companies.

What effect the new rail rate reductions will have, remains to be seen.

Coastwise tankers unloaded 219,093,000 gallons of gasoline in 1935 at Wilmington, N. C., according to preliminary figures compiled by the Office of Chief of Engineers, U. S. Army. This is equal to about two-thirds of the 309,800,000 gallons consumed in North Carolina last year.

At Wilmington, there is the Cape Fear Terminal Co., operated by McMillan & Cameron, oil jobbers, which terminals for Pure Oil Co., Sinclair, Cities Service and Gulf. Other terminals operating include plants of Shell-Eastern, National Oil Co., The Texas Co., Standard of New Jersey, and Atlantic Refining Co.

Located 30 miles up the Cape Fear River, Wilmington, with a channel to the ocean 30 feet deep and at least 300 feet wide, has accommodated tankers of 105,000-barrel capacity.

Last year, the Cape Fear Terminal Co. had a through-put of 72,000,000 gallons. This year it expects to rival the throughput of the Standard terminal, which is said to have handled about 100,000,000 gallons in 1935. For the first four months of 1936, Cape Fear company's throughput was 30,280,000 gallons.

General offices of the Quality Oil Co., an independent oil jobbing company, with a 11,000,000-gallon annual business, owned and operated by Bert Bennett and Joe Glenn, of Winston-Salem, N. C. In front of the building is one of the six 4000-gallon transport trucks operated by Quality Oil Transport Co., which hauls gasoline 200 miles and more from Wilmington, N. C.

In March of this year, Gulf began hauling gasoline by barge from the Cape Fear terminal company's plant at Wilmington to Fayetteville, N. C., where Gulf is said to have storage for 3,500,000 gallons.

The barges, with a capacity of 250,000 gallons each, make the round trip (330 miles in all) in three days. It is expected that the barge movement will run about 3,000,000 gallons a month.

Other rivers and waterways near Wilmington, including the Intracoastal Waterway and the Northeast Cape Fear River, have a substantial oil traffic.

Prior to the inauguration of Gulf's barge operations, about two thirds of the gasoline moving out of the Cape Fear terminal went by truck.

As many as 110 trucks a day have been loaded at this terminal, width 1900 loaded in the peak month. The average was about 75 a day. Since a number of trucks have been shifted to Fayetteville to haul Gulf's products, trucks loading at the Cape Fear terminal now average about 35 a day.

It was said that the most distant point in North Carolina reached by tank truck from the Cape Fear terminal is Waynesville, which is in the western part of the state, beyond Asheville and near the Tennessee line. That is a distance of about 375 miles from Wilmington — 750 miles for the round trip.

Hauls of 250 and 300 miles are commonplace, indeed, the contract truckers prefer the longer hauls.

There are more than 30 contract carriers trucking gasoline in North Carolina. Some operators have as many as 36 transport tank trucks on the road. Their principal business comes from the major oil companies.

None of the major oil companies, either in North Carolina or other states of the southeast, are transporting gasoline in their own trucks over any distance. Oil transport companies haul it for the major companies, except that portion going by tank car and barge.

Besides the contract haulers, there are many independent oil jobbers who are trucking their

Transport tank trucks loading gasoline at Cape Fear Terminal, Wilmington, N. C. As many as 110 trucks have been loaded in a day at this plant. The peak month was 1900 trucks loaded

The City Point Terminal built by an independent marketer on the James River at Hopewell, Va. There is storage for about 6,500,000 gallons. Railroad tank cars can almost reach the water's edge. It is accessible by ocean tankers

gasoline from river and ocean terminals. Some jobbers hire the independent truckers while others operate their own trucks.

Quality Oil Co., an independent oil jobbing company with a 11,000,000-gallon business owned and operated by Bert Bennett and Joe Glenn, of Winston-Salem, N. C., set up their own trucking company — Quality Oil Transport Co.

With a fleet of six 4000-gallon transport trucks, Quality Oil hauls on regular schedule. Leaving Winston-Salem around noon each day, the tank trucks make the 225-mile run to Wilmington in about 8 hours. Loaded, they arrive back in Winston-Salem early the next day. Other bulk plants of the company are also served by tank truck.

Prior to August 15, 1935, when the railroads put in low rates from Wilmington which they thought would discourage trucking, there was "big money" in hauling gasoline from terminals at that port. Even after the rate cut there must have been a profit still, because trucking of gasoline continued to increase.

Several hundred transport tank trucks were loading daily at Wilmington terminals.

Then, in February of this year the railroads announced a new rate from Wilmington to meet truck competition. It was drafted to meet a truck rate of 14.5 cents per 4000 gallons per mile. The truckers fought the rate-cut through the courts, losing out finally. The new rail rates became effective May 5. In some instances, they are only one-third the normal rate.

It is too soon to weigh the effect of the new low rates in North Carolina (which are soon to be matched with equally low rates from seaports in other southeastern states).

Some jobbers have been buying at ocean terminals and trucking 200 miles and more to their bulk plants. Selling in a market which reflected the rail rate from the seacoast, these jobbers in effect, were adding to their margin the differential between the rail rate and truck transportation costs. Judging

This high levee keeps the flood waters of the Savannah river from flooding the bulk storage plant, shown at the right, of the Pure Oil Co. at Augusta, Ga. The plant is served by barge from Savannah, Ga.

Wharf of the City Point Terminal. On the river side the water is 30 feet deep or more and ocean tankers can tie up at the dock. There is a 25-foot channel downriver to the Atlantic Ocean

• • •

by the reductions in the rail rates this must have amounted to 0.75 cent or more at first.

Other jobbers are said to have accomplished the same result by buying on a delivered basis and then contracting with their supplier to haul from the supplier's ocean terminal at the rail rate or slightly less.

Following the railroad freight rate cut May 5, North Carolina service station prices were generally decreased. This shaved the "margin" of the jobbers who were trucking from Wilmington.

To make up for this, some jobbers are trucking from their supplier's ocean terminal direct to their service stations without going through their bulk plant.

Contract truckers, hauling for the major oil companies, are said to be continuing at the old rate; except that, where the rail rate was cut below the truck rate, the trucks have met the rail rate.

There is talk that some truckers are planning to ship by tank car from Wilmington to points at the edge of the low-rate territory. From these points, they would truck gasoline into territory where the railroads have not reduced rates, it is said.

If this plan goes through, and the railroads cut freight rates in the new truck-competitive territory, the low rail rates will be pushed back farther and farther toward the Mississippi river.

The low rail rates, at present, apply in only one direction

The southeast is awake to the low cost water transportation of oil products. Here the barge "City of Columbia" is loading 3000 barrels of gasoline at the Charleston, S. C., terminal of the Gulf Refining Co. for the first commercial navigation to Columbia, S. C. via Intracoastal Waterway, Santee river and Congaree river since stern-wheel steamers, decks piled high with cotton, plied the Congaree many years ago

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Here are 15 leading Wheaton Fittings which will help you cut your transportation costs

— **Emergency Valve,** has a leak-proof stuffing box. Double packing glands make this possible — they are under constant pressure by the tension of the spring between the two glands.

2 — **Type 214 Elbow,** a long radius elbow. Permits increased flow and speeds up deliveries. Can be used with Type 114 Adapter Nozzles.

3 — **Type 114 Adapter Nozzles,** enable you to unload in the least possible time. Three interchangeable nozzles. The driver just selects the size that will give maximum flow, and instantly attaches it to the elbow.

4 — **Type 31 Truck Tank Faucet,** designed to give exceptionally speedy flow. Type 31 is standard equipment with a great many oil companies.

5 — **Type 34 Swivel,** has three slots instead of two which give a quicker and tighter connection.

6 — **Wheaton Wrenches,** known for their perfect fit and finish. There is a wrench made especially for every purpose.

7 — **Type 34 Dust Cap,** can be supplied for all Wheaton Faucets.

8 — **7-F Fusible Wrench,** has fusible metal in socket which melts in case of fire, releasing the spindle and closing the valve.

9 — **Vapor Tight Set,** saves time, ends evaporation losses and lessens fire hazards. You just select the correct adapter for the fill box.

10 — **Type 33 Truck Tank Faucet, (65° Type),** a streamline faucet with soft closing action and a full fast flow. Used where bucket deliveries are made in addition to hose deliveries.

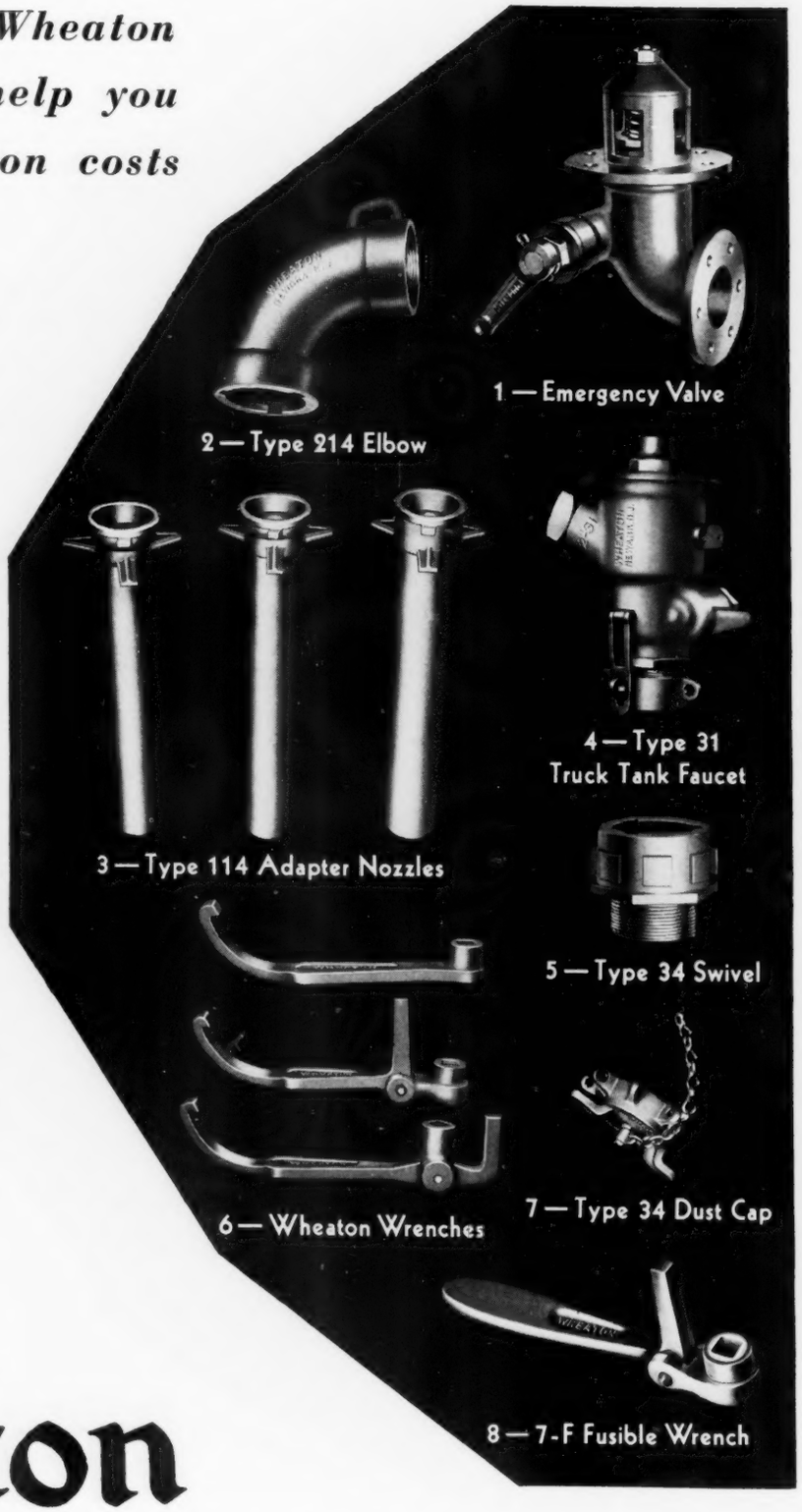
11 — **Type 33 Truck Tank Faucet, (22½° Type),** has the same features as the 65 Type, except it is used only for hose deliveries.

12 — **Type 33 Truck Tank Faucet, (Straight Type),** for use in conjunction with meter installations, and where space does not permit a faucet with an offset outlet.

13 — **External Truck Tank Vent,** for external installation on truck tanks, has new features in design, and is a positive action vent, complying with safety regulations under abnormal conditions.

14 — **Internal Truck Tank Vent —** has the same advantages as the External Vent except that it is connected on the inside of the dome, or dome cover, of each tank compartment.

15 — **Type 151 Wet Hose Nozzle,** is equipped with a dual valve which permits easy opening and even flow. Its design prevents kinking of the hose.


1 — Emergency Valve
2 — Type 214 Elbow
4 — Type 31 Truck Tank Faucet
3 — Type 114 Adapter Nozzles
5 — Type 34 Swivel
6 — Wheaton Wrenches
7 — Type 34 Dust Cap
8 — 7-F Fusible Wrench

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For almost 30 years oil and gasoline have been delivered through Wheaton faucets and other fittings. And, during all of that time, leading oil companies have proved repeatedly that Wheaton Products never deviate from that *quality* in material, workmanship, fit and finish that ensure perfect functioning, minimum wear and long life. To demand *Wheaton Quality* in your transportation equipment is to demand the *best* products made for the purpose—products that pay for themselves over and over again by saving you costly replacements.

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FILLERS · NOZZLES · WRENCHES · FITTINGS

River barge terminals in many cases are most primitive because all one needs is a place to tie up. Here the Pure Oil Co. barge Wiley Moore, named after the head of the WoffordOil Co. at Atlanta, is tied up to piling on the bank of the Savannah river, at Augusta, Ga. Pipelines come down to the water's edge from bulk storage back over the levee to the right. The Savannah has been navigable for years but this tank barge and a government operated general merchandise barge are all that run on it now

— that is, westward from Wilmington and other seaports.

Many oil men believe that, if the railroads ever materially reduce their rates on gasoline from the west, it will change the whole marketing picture in this section. Independent refiners could then get into the southeast, it is said.

Virginia has not had the expansion of truck transportation, as have other states in the southeast. Gasoline is barged up the James river to Richmond. Bulk of the movement from that city is by tank car. On the other hand, tank car movement from Norfolk is negligible.

Coastwise tankers delivered 188,686,000 gallons of gasoline at Norfolk, Va., in 1935, according to preliminary figures. This does not include barge and tanker shipments from Baltimore.

Receipts by coastwise tanker on the lower part of the James river amounted to 10,672,000 gallons, according to preliminary reports. Presumably, most, if not all, of this went to City Point Terminal at Hopewell, Va.

City Point Terminal is jointly-owned by Republic Oil Co. and S. D. De Shazor, of Petersburg. De Shazor also owns and operates Delta Oil Co., an independent oil jobbing company. Throughput of City Point Terminal, including all products, runs about 1,750,000 gallons a month.

At Richmond, 100 miles up the James river, there are two independent jobbers operating their own water terminals—National Oil Corp. and James River Oil Co.

James River Oil Co., owned and operated by the Kirkmyer brothers, also has an ocean terminal at Portsmouth, which is at the mouth of the James river. From this 5,000,000-gallon terminal, this independent company operates its own barge and towboat.

The Port of Richmond received 117,840,000 gallons of gasoline in 1935, mostly by barge and small tanker from Norfolk and Baltimore, preliminary figures of the Army Engineers indicate. Alexandria, Va., on the Potomac river just below Washington, received 4,190,000 gallons direct by coastwise tanker last year, as well as 38,517,000 gallons by barge.

At Charleston, S. C., there are ocean terminals operated by Gulf, Texaco, Sinclair and Standard of New Jersey. Channel depths are sufficient to take care of large tankers.

Last year coastwise tankers

Gasoline Receipts by Coastwise Tankers at Principal Southeastern Seaports, for 1933, 1934 and 1935.

(Figures from Office of Chief of Engineers, U. S. Army)

Port	1933	1934	1935*
	(Thousands of Gallons)		
Wilmington, N. C.	138,198	176,003	219,093
Norfolk, Va.	133,662	163,872	188,686
Charleston, S. C.	145,205	156,548	158,311
Savannah, Ga.	138,210	173,401	222,076
Jacksonville	138,210	125,171	123,886
Miami, Fla.	25,973	33,556	40,844
Tampa, Fla.	87,776	91,675	88,011
Pensacola, Fla.	26,538	28,836	39,732
Mobile, Ala.	72,837	109,246	149,795
Total	905,609	1,058,308	1,230,434

*Preliminary.

The gasoline detective

How can the western refiners enforce the 68 octane minimum at every filling station?

They can't, and they won't have to

But they have set a new high standard

The automobile engine is the world's best gasoline detective It knocks bad gasoline in pinging tones—and that is that

Don't fool yourself that the engine won't know the difference

Dubbscracked gasoline meets the new specifications and then some

It sets its own high standards

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
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unloaded 158,311,000 gallons at Charleston, according to preliminary figures. This was more than total consumption (114,729,000 gallons) in the Palmetto State, indicating that a good deal of the coastwise receipts were shipped out of the state by truck and tank car, and barge along the Intracoastal Waterway and connecting rivers.

Inauguration of Gulf's barge operations to Columbia via the Intracoastal Waterway and Santee and Congaree rivers is expected to still further increase the throughput at Charleston.

The Gulf barge, which left Charleston on its maiden trip May 23 with 126,000 gallons of gasoline, is specially designed for this service. Pushed by the towboat Walter T. Etzel, it is expected on regular schedule to make the upward trip in 72 hours, returning in 30 hours. Over the present route, the trip covers 350 miles but when the project to join the Santee and Cooper rivers is completed, this distance will be reduced to 150 miles.

Gulf has erected a large storage tank at Cayce, just below Columbia, on the Congaree river. There is a lock and dam at this point, which were decommissioned about 15 years ago by the government. The concrete apron extending to the water's edge makes a fine landing stage, while the abandoned lock furnishes an excellent dock for the barge.

It is understood that Gulf will ship out of Columbia to all western points in South Carolina and perhaps into parts of Tennessee and North Carolina. Columbia may become a center of truck operations.

At Savannah, Ga., there are several terminals, including those operated by Standard of New Jersey, Gulf, and Colonial Oil Co.

Coastwise receipts of gasoline at Savannah last year totaled 222,176,000 gallons as compared with 173,401,000 gallons in 1934 and 138,210,000 in 1933, according to preliminary figures of Army Engineers.

Colonial Oil Co., an independent jobbing company headed by Raymond M. Demere, of Savannah, which terminals for itself and other companies, had a gasoline throughput of 7,000,000 gallons last year.

Movement of gasoline up the Savannah river to Augusta, Ga., from where it is trucked further inland, declined somewhat last year, it was indicated by preliminary figures, which show 5,290,000 gallons moving up-

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MEMPHIS—Capt. Broadfoot, of the towboat A. I. Baker, rescued three persons from a motorboat which overturned in attempting to ride the swells from the towboat near Canton, Ky. The fourth in the party was drowned. The towboat was returning to St. Louis after delivering a tow of gasoline to Nashville and Carthage, on the Cumberland river.

(Left) Pipelines and boardwalk leading from the wharf of City Point Terminal on the James river. Tanks in view are part of the 6,500,000-gallon storage. (Right) Pipelines leading from wharf to storage tanks at City Point Terminal on James river

Looking shoreward from the wharf of the Cape Fear Terminal Co., at Wilmington, N. C. In the foreground are boat service facilities which are a sideline with many water terminals. Tankage for 300,000 barrels is available. This terminal is operated by McMillan & Cameron, oil jobbers, and serves major oil companies also

river in 1935 as against 6,534,000 gallons in 1934.

More gasoline was brought into Florida's four principal seaports by coastwise tankers than was consumed in the entire state, preliminary figures show. This indicates that terminals at some of these ports are serving portions of adjoining states of Alabama and Georgia.

JACKSONVILLE, on the St. Johns river, which will form an integral part of the Cross-Florida Canal when and if this project is completed, received 123,886,000 gallons of gasoline last year by coastwise tanker.

Coastwise tankers also unloaded 40,844,000 gallons at Miami, 88,011,000 gallons at Tampa, and 39,732,000 gallons at Pensacola in 1935, according to preliminary figures.

Total coastwise gasoline receipts at these four Florida ports were 292,473,000 gallons as compared with 263,010,000 gallons consumed.

Mobile's coastwise gasoline receipts have more than doubled in the last three years, totaling 149,795,000 gallons in 1935, as against 72,837,000 gallons in 1933.

The river ports of Alabama are the battleground of the railroads' war against oil barge traffic.

Three major oil companies have taken advantage of the waterway reaching from the Gulf at Mobile hundreds of miles inland to transport gasoline to the inland cities of Alabama. Several other companies are threatening to resort to barges unless the railroads cut their rates again from New Orleans-Baton Rouge and Mobile.

By means of 17 locks and dams, having a total lift of 242 feet, an 8-foot channel is made available from Mobile up the

Transport tank truck loading at City Point Terminal. Gasoline moves out of this terminal by truck to points 300 miles distant

(Left)

Pipelines and storage tanks of the Colonial Oil Co. at Savannah. The company has storage for 320,000 barrels and handles gasoline, distillate and bunker oil and also rents storage space to other companies. Last year the company put through the terminal 357,000 barrels of bunker oil, 3,000,000 gallons of distillate, 7,000,000 gallons of gasoline, 500,000 gallons of kerosine and 125,000 gallons of motor oil — this for itself and for other companies

(Below)

Looking up the Savannah river from the dock of the Colonial Oil Co., independent marketers, of Savannah, Ga. A few lines, some pumps and some piling for the ship to tie to are all that are needed to unload a tanker

Tombigbee and Warrior rivers beyond Birmingham (or rather Birmingport which is on the river about 25 miles by railroad from the city of Birmingham).

Although the last of these locks and dams was completed and opened for through traffic in 1915, it was an all-rail haul until Pure Oil Co. began to move gasoline by water to Tuscaloosa, 359 miles upriver.

In January, 1932, Pure Inland Transportation Co., a Pure Oil subsidiary, began barge operations to Birmingport and Tuscaloosa. A towboat and three barges, specially designed as a unit so that all can be accommodated at one locking, makes the 417 mile trip to Birmingport in 7 days. The round trip requires 12 days.

One barge is partially unloaded at Tuscaloosa. It was not necessary to erect a terminal there because the bulk plant was located on the river front and gasoline is pumped from the barge directly into the marketing tanks.

At Birmingport, Pure has constructed a 780,000-gallon storage plant, about a mile and a quarter back from the river. Rail facilities are available, with a 25-mile haul to Birmingham.

Pure Inland has been hauling an average of 150,000 gallons a month to Birmingport for The Texas Co.

Gulf Refining Co. also is using barges to move gasoline to Birmingham. It has two barges which are said to have a capacity of 336,000 gallons each. These are towed by the Federal Barge Line. Two round trips a month are made. At Birmingport, Gulf is said to have two 250,000-gallon tanks for gasoline and one 350,000-gallon tank for kerosine.

Movement of gasoline on the Tombigbee and Warrior rivers in 1935 totaled 24,407,000 gallons, according to preliminary figures of Army Engineers. This is nearly double the movement in 1934, which was 13,356,674 gallons.

Pure Inland also hauls gasoline 210 miles up the Alabama river to Selma, Ala., and 291 miles to Montgomery. As the channel is rather shallow, a small towboat and one barge, with a capacity of 130,000 gallons, is used for this service.

The barge is partially unloaded at Selma, then continues on to a point 6 miles southwest of Montgomery, where Pure has 894,000-gallon storage.

According to preliminary reports of Army Engineers, gasoline movement on the Alabama river in 1935 totaled 4,035,285 gallons. In 1934, it was 3,545,000 gallons, the report indicated.

In 1933, the railroads slashed their rates from New Orleans-Baton Rouge to Birmingham to 23.5 cents a hundred pounds, and from Mobile, to 20.0 cents. But this did not get back the oil traffic; in fact it has nearly doubled despite the lower rates.

Now, the railroads, backed by several major oil companies not using water transportation to Alabama river ports, are asking the Interstate Commerce Commission to approve a rate of 18.5 cents from New Orleans-Baton Rouge and 15.0 cents from Mobile, with proportionate reductions to the other points where there is water competition.

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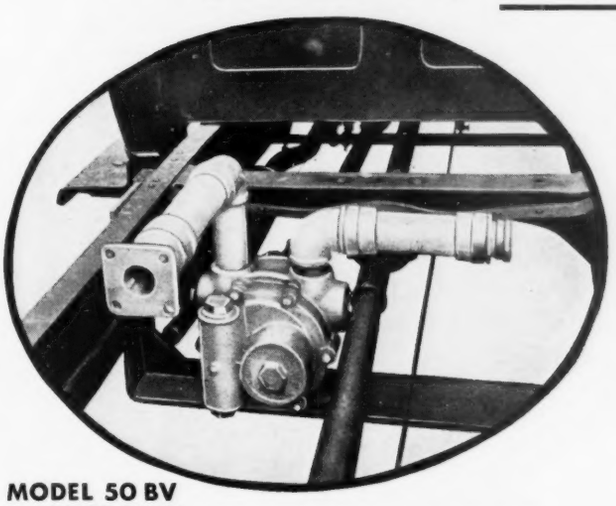

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Capacity, 50-85 G.P.M. at 340-575 R.P.M. Mounted on truck chassis. This pump is mounted on a base when used as a transfer unit.

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- Heat generation is eliminated*
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- Excessive pressures are eliminated*
- Less power is required*
- Constant minimum pressure is maintained*
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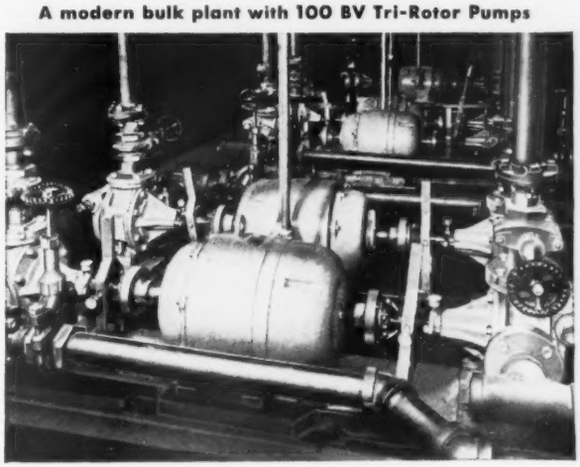
- Works better with meters
- Extremely quiet in operation
- Simply constructed, strong, durable and compact ($9\frac{3}{4}$" bearing)

THE Variable Volume principle is exclusive with Tri-Rotor pumps, therefore permits us to make claims of features which cannot be found in any other Rotary and Centrifugal pumps. Our unit does *no pumping when idling* (in other Rotary types this would be called By-passing).

The maximum power load occurs only when pumping full volume and the horsepower *drops 50 to 60% when idling.*

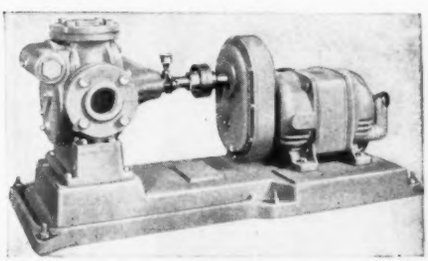
Variable Volume Control *plus* low cost, high efficiency and long life—these are the reasons why leading oil companies are adopting the Tri-Rotor for truck and bulk plant use.

A modern bulk plant with 100 BV Tri-Rotor Pumps



Below—MODEL 100 BV TRI-ROTOR PUMP

Capacity, 110 G.P.M. at 690 R.P.M. For bulk plant, water terminal and other heavy duty requirements.



*Write us for complete information including engineering specifications and performance charts.

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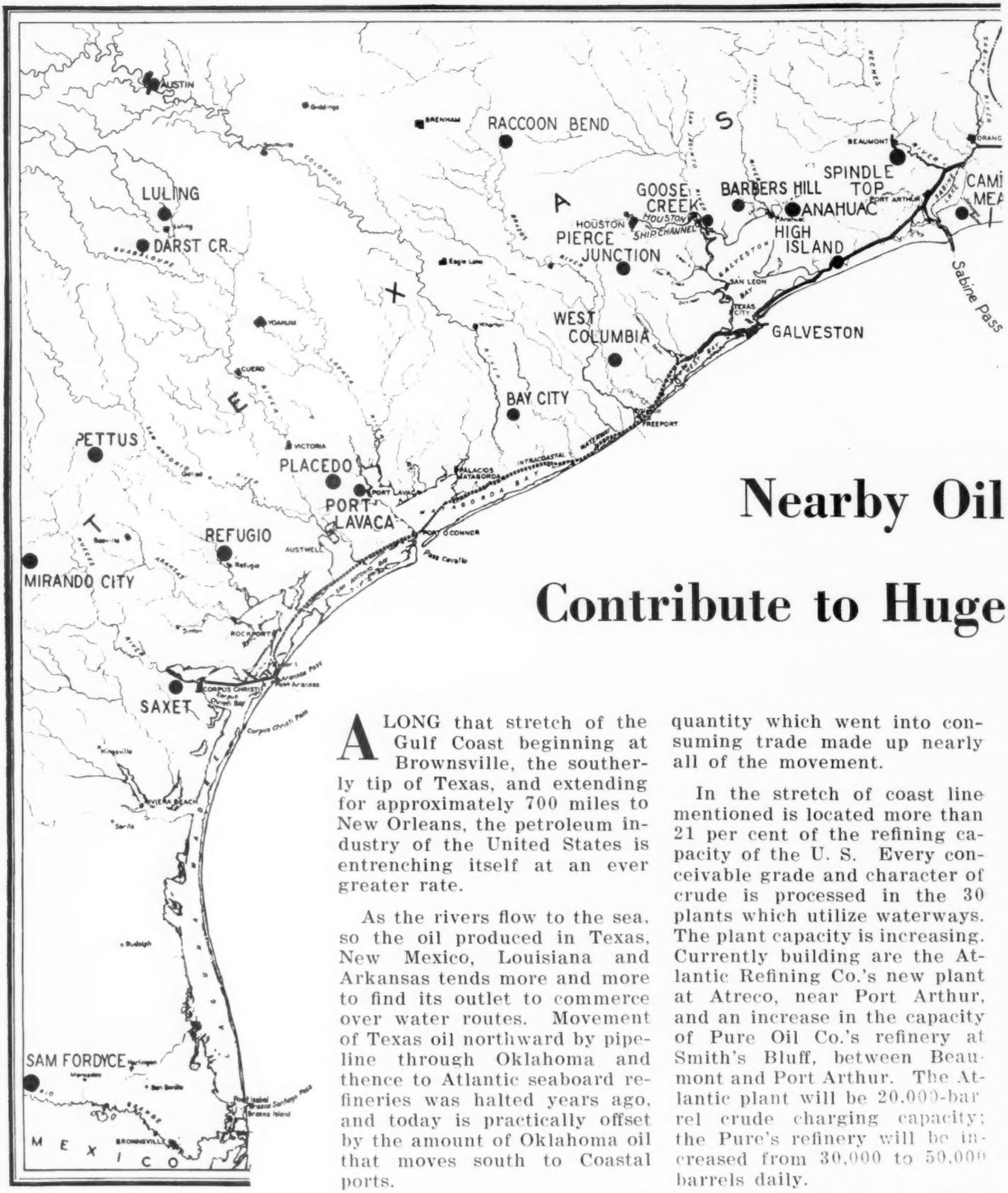


The Texas-Louisiana coast line, showing principal ports, the intracoastal canal and position of several principal oil fields, the production of which moves principally by pipeline to coastal points and thence by water, either as crude or refined products

Nearby Oil Contribute to Huge

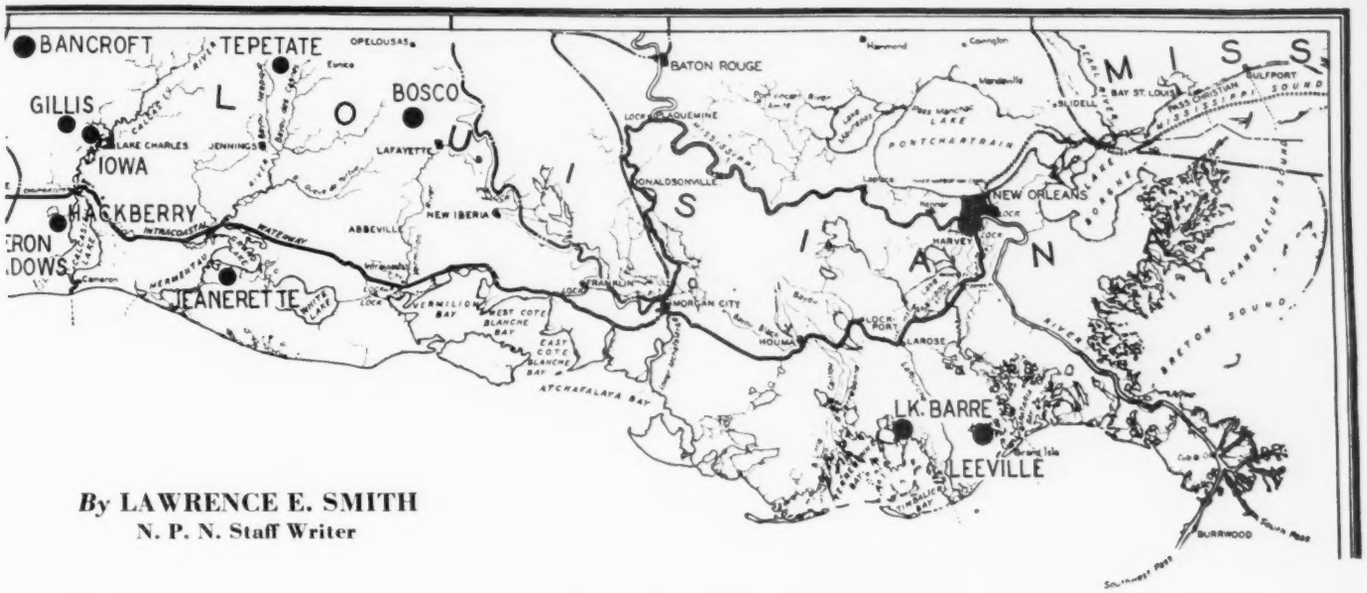
ALONG that stretch of the Gulf Coast beginning at Brownsville, the southerly tip of Texas, and extending for approximately 700 miles to New Orleans, the petroleum industry of the United States is entrenching itself at an ever greater rate.

As the rivers flow to the sea, so the oil produced in Texas, New Mexico, Louisiana and Arkansas tends more and more to find its outlet to commerce over water routes. Movement of Texas oil northward by pipeline through Oklahoma and thence to Atlantic seaboard refineries was halted years ago, and today is practically offset by the amount of Oklahoma oil that moves south to Coastal ports.

In the first quarter of 1936, the total volume of oil moved from Coastal ports was 47,188,000 barrels, or about 18 per cent—nearly a fifth—of the entire production of the U. S. While there was some movement between ports, such as oil loaded at one point and moved to refinery at another, the quantity which went into consuming trade made up nearly all of the movement.

In the stretch of coast line mentioned is located more than 21 per cent of the refining capacity of the U. S. Every conceivable grade and character of crude is processed in the 30 plants which utilize waterways. The plant capacity is increasing. Currently building are the Atlantic Refining Co.'s new plant at Atreco, near Port Arthur, and an increase in the capacity of Pure Oil Co.'s refinery at Smith's Bluff, between Beaumont and Port Arthur. The Atlantic plant will be 20,000-barrel crude charging capacity; the Pure's refinery will be increased from 30,000 to 50,000 barrels daily.

The largest single plant in this region is that of Humble Oil & Refining Co. at Baytown, Texas, 115,000 barrels. Gulf Refining Co. is not far behind with its 100,000-barrel plant at Port Arthur and other giant refineries are the Magnolia Petroleum Co.'s 80,000-barrel plant at Beaumont and The



By **LAWRENCE E. SMITH**
N. P. N. Staff Writer

Fields and Coastal Refineries

Water Movement From the Gulf Ports

Texas Co.'s two plants near Port Arthur, one of 75,000 barrels and the other of 20,000 barrels capacity.

The great volume of petroleum traffic handled through the Gulf ports is largely responsible for the rapid growth of several coastal cities. Houston, for instance, reached fourth place among U. S. ports in 1934, being exceeded only by New York, Philadelphia and Duluth-Superior. Complete figures for 1935 are not yet compiled, but preliminary statistics indicate that it continued in that rank. Its total cargo tonnage in 1934 was 18,516,223 short tons, of which 87.5 per cent was petroleum.

The volume handled through the Sabine Waterways is much greater than that of any other coastal district, with eight ports making up one general group. Each port, however, is an entity and for the sake of avoiding harsh words from the several chambers of commerce, the figures as to petroleum tonnage handled for the first quarter of 1936 are set out separately.

It is difficult in spots in the Sabine Waterways to tell where one port leaves off and another begins—the whole area has an extent of about 30 miles—but each port is under separate port authority and they object to being grouped just as Minneapolis and St. Paul grow indignant at any attempt to consider them one city.

Total oil, in barrels, handled through the various Coastal ports during the first three months of this year is shown in an accompanying table.

Houston owes its position in the shipping world to the ship channel which, as an improved water way, runs from the west end of Galveston Harbor up San Jacinto River and Buffalo Bayou to the turning basin in the city itself. Its total length is 50 miles and through successive dredging operations, which began in 1903 and continued to late in 1935, the depth from the bay to the turning basin was brought to 32 feet. Channel width is 400 feet and the turning basin has a diameter of 1100 feet. Distance from Galveston Bay to the turning basin is 25 miles.

This channel provides a landlocked harbor, safe from tropical storms, and shippers seized quickly upon the advantages offered. Appropriation is sought of the federal government of sums for still further improvement of the channel.

The Sabine district as a whole excels all others in total tonnage. Here, within a few miles and with nearly all of its extent visible on clear days, is a vast concentration of refining and pipeline terminals. The East Texas field contributed enormously to its traffic, for it is a shorter jump by pipeline to the Sabine district than it is to Houston and also a little nearer to the Atlantic seaboard by water. It is boasted that one barrel out of every 10 runs to stills in the U. S. is refined in the Beaumont - Neches - Port Arthur area. Crude shipments to Atlantic coastal refineries have increased greatly in recent years.

Completion of the intracoastal canal, which parallels the Gulf Coast line from near New Orleans to Houston, and in time will be continuous to

The meandering Neches River gives Beaumont, Texas, a 30-foot channel to the sea. In the middle distance of this picture is the tank farm surrounding Magnolia Petroleum Co.'s refinery

Corpus Christi, has contributed greatly to the movement of petroleum, particularly in coastal Louisiana. It is a curious circumstance that no trunk pipelines of any considerable length exist in this section of Louisiana. Crude oil is gathered by barges and shallow draft tankers — mainly by barges—from the fields and moved either to refineries or to terminals for loading on seagoing tankers. Principal reason for this condition, of course, is that it is bad pipeline country. Swamps and the great areas of submerged lands make it advantageous to move oil by water.

The intracoastal canal, 100 feet wide is an unique water road which permits the movement of oil barges coastwise from field to refinery or terminal in any weather. Connected by small bays here and there with the deeper Gulf of Mexico, craft which travel this route can move into deep water if the canal is congested and they quickly find a place to duck back in if storms arise. The canal provides a connection with the 15,000-mile inland waterways system of the Mississippi river and its tributaries, although it is little utilized for the movement of refined products except along the coast. All kinds of shallow draft boats are seen along the canal but the greater amount of tonnage is merchandise and materials other than petroleum, except in Louisiana.

Corpus Christi and adjacent ports have grown rapidly in the volume of petroleum moved. The fields of southwest Texas,

Petroleum Traffic Through Gulf Coast Ports

(Figures are in Barrels for First Quarter, 1936)

Sabine Waterways

Port	
Atreco	5,081,000
Sabine	4,587,600
Port Arthur	6,454,000
Beaumont	4,920,000
Smith's Bluff	1,016,500
	22,059,100

Houston-Galveston Bay

Houston	6,732,900
Texas City	2,369,000
Baytown	839,000
	9,940,900

Corpus Christi Area

Harbor Island	7,596,500
Corpus Christi	2,047,000
Ingleside	210,000
	9,853,500

Brownsville District

Point Isabel	39,045

Louisiana Ports

Louisiana Terminals*..	1,686,000
Haymark	1,852,000
Lockport	1,025,000
West Baton Rouge	296,000
Amesville	435,500
	5,294,500

*Louisiana Terminals include Westwego, Marrero, Chalmette, Mermentau and Sulphur.

Grand Total, first quarter, 1936—47,188,000 barrels.

where a rapid pace has been set in development in the past two years, contribute much of the tonnage. The trunk pipeline of the Humble from New Mexico and the West Texas fields supplies the same company's refinery at Ingleside, in this district.

Brownsville is the latest aspirant to the honor of being an important oil shipping port. There was considerable traffic from the nearby Point Isabel in the latter part of 1935, when cargoes of crude produced in several fields of southwest Texas were being lifted frequently for the Italian government. Harbor improvements recently completed at Brownsville doubtless will result in the starting of petroleum shipments in the near future, although additional pipelines will be required to bring about sizeable volume.

In recent years, water transportation of crude oil and products to the principal consuming centers has become all-important and few companies but that either have or plan to obtain a position adjacent to the Gulf Coast. The matter of profits is greatly affected by transportation charges. Charter rates fluctuate over fairly wide range, hence no absolute statement can be made as to costs, but a barrel of East Texas oil can be delivered north of Cape Hatteras for around 50 cents as a general thing and that is a far cry from the old days of pipeline movement to the Atlantic Coast.

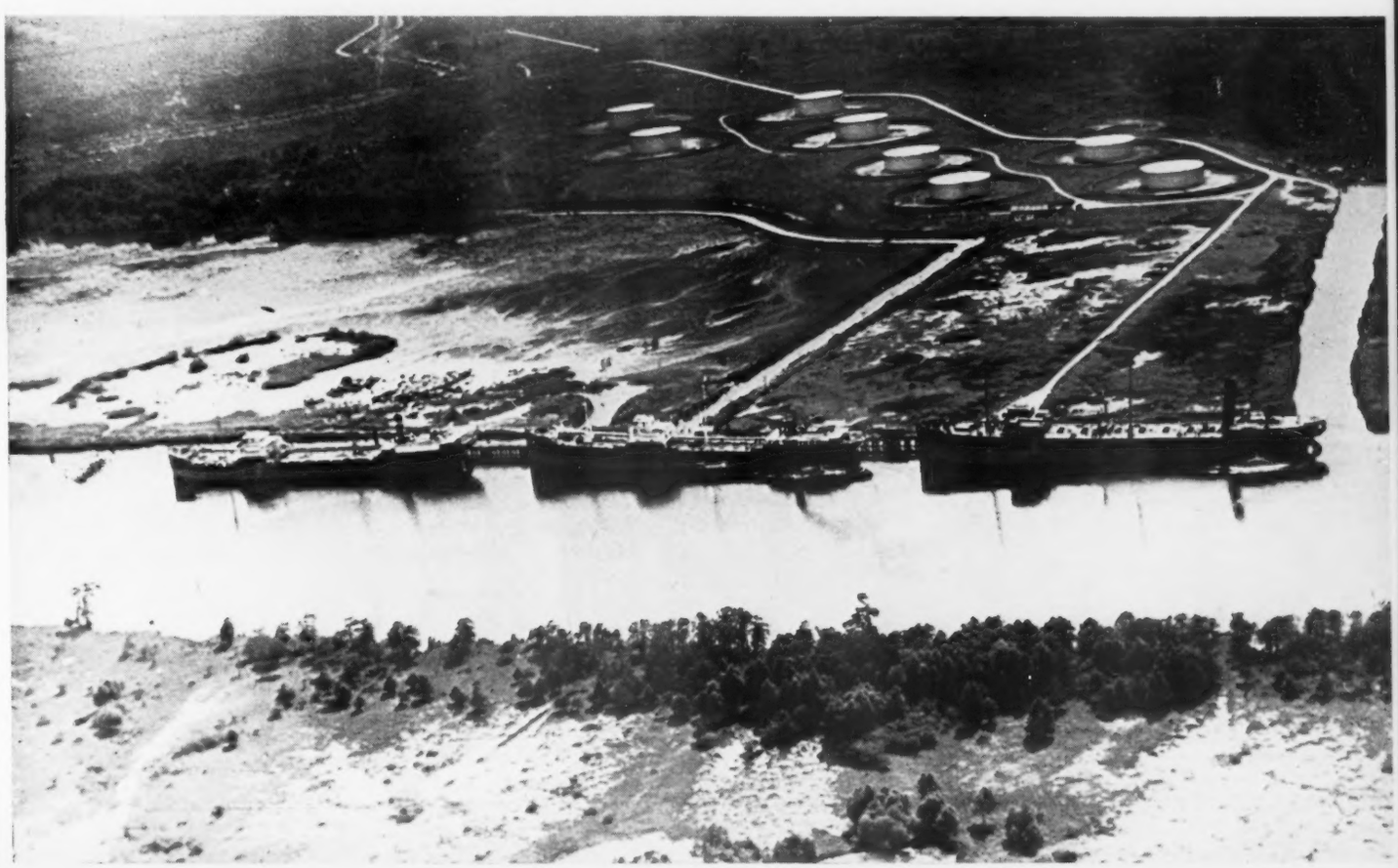
Such companies as Texas, Sinclair, Humble, Shell, Magnolia, Sun, Pan American (Standard of Indiana), Gulf, Amerada, Atlantic, Pure and Barnsdall are firmly entrenched in this area. Others are joining them. Continental Oil is rapidly building a substantial production on the coast, and its new Tepetate field, in southern Louisiana, will have its outlet at the port of Lake Charles, whence the crude will be moved to Baltimore. Skelly Oil Co.'s new field at Bay City, Matagorda county, Texas, is soon to contribute substantially to the volume of crude moving by water. The ambition of every company of more than local scope of operations seems to be to find an oil field as near water as possible.

The peak in Gulf Coastal shipments of oil has not yet been reached. The crude reserves are adequate to maintain the pace already set and the rate of discovery of new fields continues to be favorable. The relatively low transportation cost of getting the oil to market is one of the reasons why companies can go after the 8000 and 9000-foot production in the Coastal region.

River Tonnage Passes All Records

MEMPHIS, May 27.—The tonnage now handled on the Ohio, Missouri, Illinois and Mississippi rivers is the heaviest in the history of inland waterways, according to Capt. Al Smith, an official of the Mississippi Valley Barge Line, as reported in The Waterways Journal for May 30, 1936. There is a shortage of towboats and barges, he said.

Loading terminal and part of tankage of Stanolind Crude Oil Purchasing Co. at Beaumont, Texas. The famous Spindletop field is near this terminal



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Lock Number 26 on the upper Mississippi, at Alton, Ill., nearing completion. This project, expected to be completed in 1939, will provide a nine-foot river channel all the way to St. Paul-Minneapolis. One oil company is already planning to move gasoline by barge to the Twin Cities

Independent Refineries in Southwest Plan Wider Use of Inland Waterways

By ALLEN S. JAMES
N. P. N. Staff Writer

GASOLINE distributors, particularly the well entrenched independents in the southeastern and Mississippi Valley states, have given considerable thought the past several months to the possibility of transporting their oils by water at least a part of the way from refinery to destination.

Barge line officials on the lower Mississippi reported recently that scarcely a week passed but what one or more inquiries were received from jobbers in states adjacent to waterways, regarding the cost of water movement. Refiners who are most logically situated to supply gasoline for such movement also have reported an increase in the number of inquiries received.

There are many points for the jobber to consider in contemplating the use of water transportation. The first thing he should look into is his potential sources of wholesale supply. There are a number of them. One independent refiner is located at New Orleans; there are at least six plants along the Gulf Coast and several independent refiners in the Shreveport-El Dorado refining district and six or more sizable plants in the East Texas field. These plants have a combined daily crude capacity of better than 150,000 barrels.

Some of these refiners already have contracts with jobbers and sufficient other nearby business to be only mildly interested in making contracts for gasoline to move by water. But the contracts do not last forever and there is the possibility of working out a mutually satisfactory agreement when the right refiner is found.

If the source of supply is located inland the first cost will be the freight to get the gasoline to water. The rail costs. in cents per gallon from each of these inland points, are shown in Table No. 1

Terminal facilities will have to be obtained so the gasoline can be transfered from tank cars to barges. The General American Tank Storage & Terminal Co. Inc., is probably the largest public terminal operator along the Gulf, with terminals at Corpus Christi, Houston and New Orleans, as well as Carteret on the Atlantic seaboard.

The cost of pumping gasoline into terminal storage and then out again to barges or tankers is approximately 0.2 cent a gallon, which covers also the first 30 days storage. If the gasoline is left in storage longer than 30 days there is an additional 0.1 cent a gallon storage charge for each 15 days. The owner of the gasoline, meanwhile, stands the evaporation loss.

If the source of supply is al-

ready located on or near the water, there will not be the freight and terminal costs as such, but the gasoline price probably will be sufficiently higher than the inland refiner's price virtually to offset that factor.

Barges can be rented, leased or obtained from certain barge line or towing companies, the cost per ton covering the use of the barge as well as the towing costs.

The American Barge Line Co., at New Orleans, has been unusually active in the operation of gasoline barges as the transportation of petroleum products has grown in that area. The company is reported to have between 40 and 50 barges now in operation.

Gasoline barges range in size from 1800 to 8000 barrels capacity, or 9 to 40 tank cars, with tonnage being from 250 to 1100 or more.

It is difficult to give here the cost of a barge. There are too many unknown factors involved. The Pan American Petroleum Corp. recently launched two 7500-barrel barges at Nashville, Tenn., costing fully equipped, approximately $25,000 each. That cost figure amounts to about $3.33 per barrel of capacity.

If a barge is rented the cost will be in the neighborhood of $15 a day for a 3000 to 4500-barrel barge, which may or may not have pumps. The rental begins when the barge is being loaded and continues until it is returned to its starting point.

Then there is the matter of insurance. One company barging sizable quantities of gasoline from the vicinity of New Orleans along the Gulf Coast reports it is paying approximately 25 cents per $100 valuation on gasoline from New Orleans to Mobile. The rates will be slightly higher for longer distances. This insurance is almost necessary because the gasoline is handled by towing companies at the owner's risk unless negligence can be proved in case of loss.

Then arrangements must be made with a barge line or towing company to have the loaded barge taken to destination. If the barge is loaded along the the Texas Gulf coast, it will cost in the neighborhood of 0.5 to 0.625 cent a gallon, to get the barge moved as far as New Orleans. If the barge is started from New Orleans and moved eastward the current cost is about 0.25 cent a gallon to Mobile, 0.5 cent a gallon to Biloxi, Miss., and 1 cent a gallon of the oil is moved from Mobile on up the Tombigbee river to Birmingham port.

Table 1 — Comparative Coastwise and Export Railroad Freight Rates for Gasoline from Various Inland Refining Points to Gulf Coast and Mississippi River Ports

(Cents per Gallon)

From	To Gulf Coast Points West of the Miss.	To Gulf Coast Points East of the Miss.
East Texas	0.847	1.42
La.-Ark.	0.847	0.847
Cent. and No. Texas	1.42	1.42

On the other hand tanker loads of gasoline are moving from Texas Gulf ports to Atlantic seaboard points even above Cape Hatteras for approximately 20 cents a barrel. It must be kept in mind, however, that these barge and tanker rates are subject to sudden fluctuations, and that each movement of gasoline is the result of a separate agreement between the owner and the towing company.

If the gasoline is to be moved up the Mississippi river or its tributaries, it can be brought from the Texas coast through the Intercoastal canal, or can be assembled at a Mississippi river terminal near New Orleans.

The cost of moving the gasoline up the Mississippi is approximately 2 mills per ton mile. For example, a barge is loaded with 400 tons of gasoline, making the towing cost per mile (2 mills x 400 tons) 80 cents. If the destination is 500 miles up the river, the total cost will be (80 cents x 500 miles x 2) $800, since the towing cost includes the mileage both ways. This barge lot would be equivalent to approximately 15 tank cars of gasoline. This would figure to approximately 0.66 cent a gallon towing cost.

Recent reports indicate that the current towing charge from New Orleans to Memphis is approximately $1.50 a ton; to Cairo, Ill., $1.90; to St. Louis $2.30, to Louisville $4 and to Cincinnati $4.50 a ton.

The distributor who obtains his gasoline by barge must have sufficient storage available at destination, or a loading rack sufficient to hold the required number of tank cars. If the barges he uses are not equipped with discharge pumps, he must provide pumps for transfering the gasoline from barge to storage or tank cars.

The farther inland from the water the distributor's business is located, the higher will be the ultimate cost, since he will have to add to his other costs the freight or truck costs to get the gasoline from water side to his distributing points.

It can be seen, therefore, that, for the small distributor, the initial costs incidental to providing water transportation for his products provide a genuine handicap. For the distributor with sizable gallonage the matter of savings in relation to capital outlay apparently is the determining factor. On the other hand several smaller distributors could very easily form a group to obtain their requirements by water or a distributor could contract with a refiner for a sufficient amount of gasoline to permit him to redistribute a portion of that gasoline to smaller jobbers in his locality. It might even be possible for a jobber to build up such a gallonage in that manner that the refiner supplying the gasoline would be willing to share the initial cost of building a terminal at destination.

Meanwhile there are many reports and definite steps being taken to utilize more fully water transportation.

Just recently the White Eagle Oil Corp. a Socony-Vacuum subsidiary, announced it was going to construct a gasoline pipeline from its Augusta, Kans., refinery to the Missouri river at Kansas City. From this terminal the White Eagle will be able to move gasoline by barge up the Missouri river into Iowa, and down the river to St. Louis. The movement up the river will not be possible the year around until after present dam work by the government engineers is completed.

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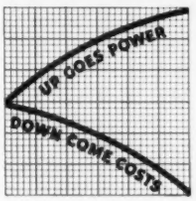

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Distance Traveled	3511.5 miles
Running Time	129 hours, 24 minutes
Average Speed	27.14 miles per hour
Gasoline Used	308.6 gallons
Gasoline, miles per gallon	11.378
Oil Consumption	2 quarts
Cost of Fuel	$57.59
Cost of Oil	$.67
Fuel and Oil (cost per mile)	$.016
Average cost per ton mile	$.00328
Water Consumption	1 gallon

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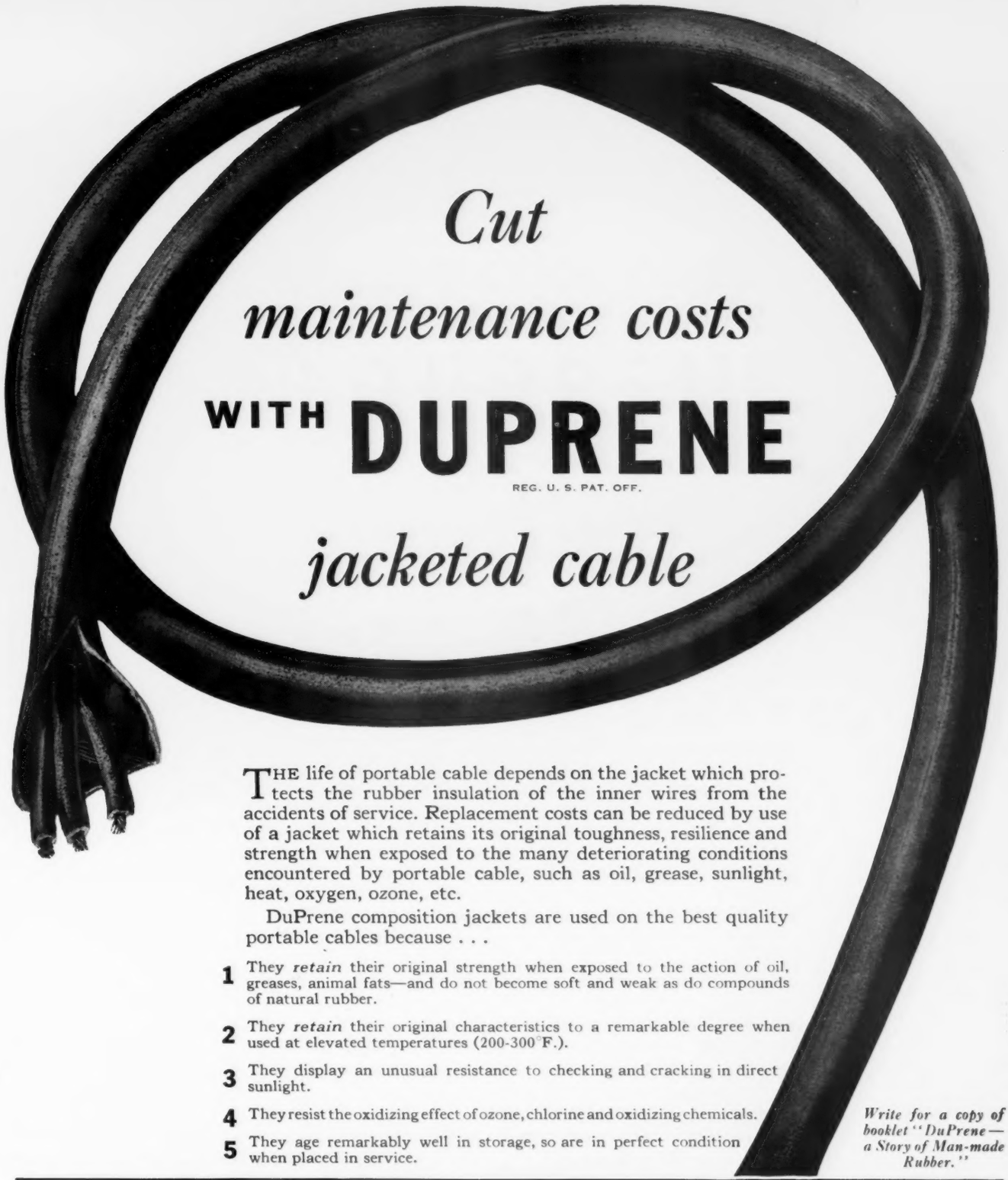
group of refiners in the East Texas area were discussing seriously the advisability of a gasoline pipeline from the East Texas field to Dallas, in order to eliminate the trucker of "hot" gasoline. This pipeline, it was argued at first, would give the legitimate marketers in Dallas an opportunity to meet the competition provided by the truckers.

Then came the suggestion now being given consideration that, instead of a pipeline to Dallas, a line be built straight eastward through the Shreveport and El Dorado refining districts as well as near the Rodessa area to the Mississippi river. The East Texas, Shreveport, Rodessa and El Dorado refiners would be owners of the line, which would give those refiners access more readily to their natural marketing area, the southeast. It would eliminate the necessity of "bucking" the other Mid-Continent refiners in the normal Standard of Indiana territory. That pipeline, it was believed, would give these inland refiners that measure of advantage they need to compete with Gulf Coast refiners at present freight rate levels.

Evidence of barging activity along the upper Mississippi river is shown in the figures representing the 1935 movement: During that year over 50,000 barrels of gasoline were barged from St. Louis to Minneapolis, as well as approximately 12,000 tons of coke.

It is also known that at least one and probably two or three more refiners are considering the possibility of building cooperatively with eastern seaboard distributors a terminal to handle gasoline brought in by water from Gulf coast points and the lower Mississippi river. One refiner said recently he had been studying an offer of a distributor to share a terminal on the Atlantic coast, the refiner to have the privilege of building up some gallonage of his own in addition to that of the distributor who would share the terminal.



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E. I. DU PONT DE NEMOURS & CO., INC., RUBBER CHEMICALS DIVISION, WILMINGTON, DEL.

A new 2170-gallon semi-trailer unit of the Arrow Petroleum Co., Chicago, for the delivery of fuel oil. The pump is driven through a shaft which extends vertically through the fifth wheel. The power serves two purposes through a clutch; it drives the pump and also operates the hose reel. The operator is shown operating the clutch lever

Modern Tank Truck Design Features—

1—Light Weight Metals to Increase Pay Load
2—Full Flow Fittings to Speed Delivery
3—Meters for Accurate Deliveries

ONE of the most interesting developments in truck transportation as used by the oil industry during the past year has been the increasing interest in the six-wheel truck with four-wheel drive. In the industry's continual search for a truck that has enough flexibility to be able to thumb its nose at tempermental state regulations, the six-wheeler seems to be an answer.

Few truck operators are failing to realize that state highway regulations are slowly but surely reducing the allowable loads that may be permitted on each axle of a truck. An indication of the interest in the six-wheel field is shown by the purchase by one oil company of nine different makes of trucks in order to investigate the full possibilities of the light six-wheeler and to compare certain 5-speed transmissions, overdrives, and two-speed axles.

By **JOHN W. THOMPSON**
N. P. N. Staff Write

Austin M. Wolf, a consulting automotive engineer, at a recent Society of Automotive Engineers meeting, showed the operating economy of a light six-wheel truck over a heavy duty four-wheeler. Both units carried tanks of 1000 gallons capacity, and both had been driven approximately 25,000 miles. The cost per mile on the four-wheeler, over a 12-month period, amounted to 22.7 cents. The light six-wheeler, carrying the same pay load, had a per mile cost of 11.2 cents over a 9-month period.

A comparison of similar types of units each carrying 2000 gallon tanks showed the heavy duty four-wheeler to have a cost per mile of 23.1 cents, and the light six-wheeler a cost of 11 cents.

Another development, destined to increase in use among the semi-trailer operators, is the power fifth wheel. With this device it is possible to transmit power from the tractor to the semi-trailer through the fifth wheel.

As developed by one trailer manufacturer the mechanism consists of a shaft which runs from the power take-off on the tractor to the gear box mounted under the lower fifth wheel. Here a gear automatically engages another gear on the bottom of the trailer king pin. The king pin is hollow, and through it runs a steel shaft connecting the king pin gear to that in the upper gear box mounted at the front of the trailer. Thus pumps on semi-trailers can be operated from the power take-off without the use of flexible shafts or hose. The drive shaft is splined, with a universal joint at each end.

A year ago battles were waging in a number of oil companies between the advertising and the automotive departments over the issue of who was to pay for the increased cost of streamlining the company trucks. The advertising department thought

the idea of streamlining was excellent but that it was the automotive division's baby as far as added cost was concerned. The automotive department was certain that streamlining of trucks added to their advertising value and that part of the fabrication cost should be born by the advertising fund.

The skirmish seems to have died down, with the advertising departments having the edge. Truck tank fabricators have fewer demands for ultra-streamlined tanks this year, and there are some observers in this field who say the modernistic tank truck has reached a peak. Some oil company transportation heads have clung to the conviction throughout this streamlined era that a well painted tank sitting on a well kept chassis will deliver just as much gasoline at a lower operating cost, and would also have a definite advertising value.

One of the large oil companies which went in for ultra-streamlined trucks only a few months ago, has now gone back to the conventional type of unit in its present purchases, with the explanation that it has a number of streamlined units now and does not need any more.

The tank fabricators, quick to follow the whims of the oil companies, are now able to offer a semi-streamlined tank with square-cornered beaver tails instead of compound curves, with a resulting saving to the oil company of $200 or $300 on the initial purchase price.

A recent body innovation which is destined to become of increasing importance is the specialty cabinet. This cabinet is built into the side rack of the truck, and as designed by one tank fabricator, has 12 compartments and a built-in drawer. An additional 4-compartment section is built into the vertical barrel carrier, which is removable so that barrels may be carried if desired. The hinged cover of the side rack drops down to a horizontal position to serve as a counter or desk in making a sale of accessories from the truck.

This 40,000-pound six-wheel unit is one of the newest of the fleet of Shell Eastern Petroleum Products, Inc. It is powered by a diesel engine

Of the three common types of tank material, namely, blue annealed steel, high tensile steel, and aluminum, the former still holds the center of the stage. However, the two lighter types of sheets continue to gain in popularity due to their ability to offer the operator a means of increasing his pay load without increasing the gross load on the unit.

Fittings and piping on the new units are almost without exception of the full flow type, with no obstructions to hinder the movement of the liquid from the tank compartment to the receiving tank. One manufacturer of fittings has conducted tests on flows through elbows and bends and has upset the old notion that flow efficiency increased as the radius of curvature increased. It has been found that, between limits of 0 radius (a plain 90-degree mitre weld) and a radius of five pipe diameters, maximum efficiency is obtained when the radius is approximately three pipe diameters. As the radius increases above three pipe diameters the pressure drop becomes greater, due probably to the time factor of turbulence in making the direction change. As the radius decreases below three diameters, the pressure drop increases slightly again.

The average truck tank in use today, according to a manufacturer of valves and fittings, equipped with piping, emergency valves, faucets and hose of a 2-inch size, and a discharge nozzle of 1½-inch pipe, will unload at the rate of about 35 to 50 gallons per minute. With

• • •

These two photos show how an old 500-gallon tank truck with four compartments was transformed into a 650-gallon five compartment unit by the addition of a 150-gallon compartment on the front end. Sand blasting and a paint job made it a new truck

ONE MAN'S EXPERIENCE

MR. A. A. CURRY, whose letter is reproduced below, has used both straight trucks and tractor-trailer units in his haulage operations. Mr. Curry keeps a close check on every important item that affects Oil marketing. And because he is progressive and successful, this man's views on haulage are significant—may be helpful to other Oil men who are using straight motor trucks in an average operation.

A. A. Curry, Distributor
Gulf Refining Company
(Delaware)

A. A. CURRY, MGR.
J. S. MILLER, ASST. MGR.
W. V. HILFIKER, SEC-TREAS.

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PHONE 30

MUNCIE, IND.
E. BURLINGTON DRIVE
PHONE 4450

April 23, 1936

Fruehauf Trailer Company
729 North Capitol Avenue
Indianapolis, Indiana

ATTENTION OF MR. ART WAMBERG

Dear Sir:

It is most gratifying to the writer to advise of the actual savings in the operation of semi-trailer units in comparison with the ordinary straight job. Several years ago, when we first started the distribution of refined oils our jobs were 100% straight jobs. As our business increased it was necessary to increase our hauling capacity and accordingly it was necessary to change to semi trailer jobs which we did, using Fruehauf trailers.

Our operating cost per mile of semi jobs is not close to one half what it was originally with the straight units. Instead of hauling from 500 to 700 gallons per unit we now haul from 1500 to 2000 gallons without increasing the number on the payroll as well as reducing the operating cost per mile.

As you know, we have several of your units and I am glad to state we have never spent one cent on Fruehauf trailer repair or replacement of parts in the last five year period. In other words, we can not praise Fruehauf equipment too highly and you may be assured that any time any additional equipment is placed in our operation it will unquestionably be branded "Fruehauf".

Yours very truly,

A. A. CURRY, DISTRIBUTOR
GULF REFINING COMPANY
Portland, Ind.

AAC:CM

Trailers Should Save YOU 4/10 of a Cent Per Gallon!

SEMI-TRAILERS, on the average, haul gasoline for 4/10 of a cent per gallon less than straight trucks of equal capacity. Naturally, this figure varies with individual operations, but the saving, in an anywhere near ordinary set-up, equals 30 to 50% of haulage costs.

Think what this means—multiply this saving by your yearly gallonage—and you'll see why so many Oil men are making hundreds of dollars more profit each year with Fruehauf Trailers.

FREE SURVEY

It's easy to find out exactly what Trailers can do for you. A Survey by a Fruehauf Transportation Engineer costs you nothing, may save you hundreds of dollars a year. For a preliminary consultation, write or wire the address below.

. . .

Details, facts, and figures are all available to you in a revised edition of that handy, pocket-sized booklet called "Executive Thinking". This second edition of "Executive Thinking" has been brought strictly up-to-date—presents briefly and clearly the fundamental principles of economy in transportation. Send for your copy.

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FOR EXTREMELY LIGHT WEIGHT EQUIPMENT

THIS Fruehauf Trailer gives you the absolute minimum of weight that can safely be had in a tank-Trailer. Scores of these now in service are giving their owners exceptionally low cost haulage. They are as light as any tank-Trailer unit on the market, yet offer you attractive appearance and safety, too. For information on this special lightweight tank, write Dept. "F", Fruehauf Trailer Co., Detroit, or call nearest Fruehauf representative.

FRUEHAUF TRAILERS

"Engineered Transportation"

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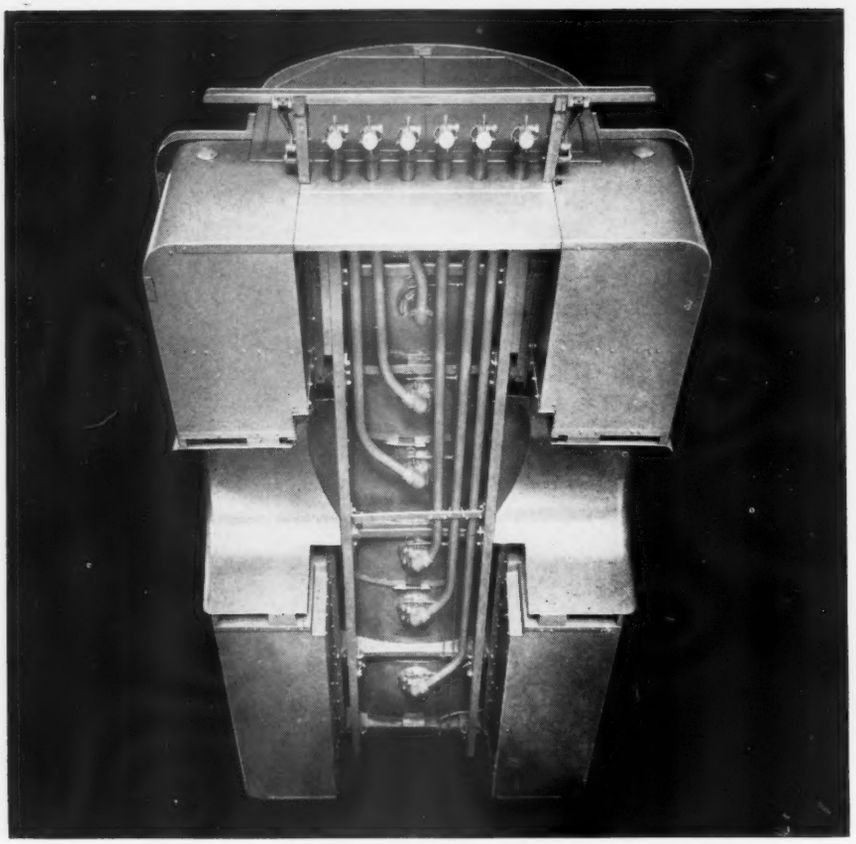


Underneath view of a truck tank, showing the piping and manifolding arrangement. With the steel tubing, pipe fittings and sharp bends are eliminated to reduce friction loss

modern fittings this discharge rate can be stepped up to 115 gallons per minute, without increasing the size of the fittings. To bring this about means the installation of the correct size of vent, the proper emergency valve port area and screen, the elimination of service ells, the adoption of faucets with unrestricted flow and hose with low frictional loss, and the use of a tight connection at the faucet and at the fill box of the underground tank in order to increase the head.

A number of companies are now equipping their trucks with tight connectors with quick couplings at both the faucet and the nozzle, and then fitting on the end of the nozzle a long pipe that extends down into the underground tank, thus providing a considerable increase in head that speeds up the rate of flow considerably.

It has also been found by actual test that, where 2-inch fittings under the above conditions will give a flow of 115 gallons per minute, an increase in the size of the fittings to 2½ inches will increase the flow to 180 gallons per minute, or approximately a 50 per cent increase.

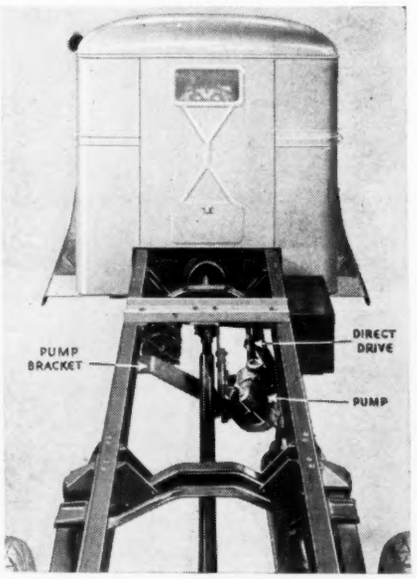
Another very important trend in tank truck construction is reflected in the tremendous increase in the use of sub-surface fillers. Filling of tank compartments below the surface of the liquid can be roughly divided into three classifications: (1) the method in which a tight connection is made with a fill pipe at the top of the tank, this pipe extending down between two compartments to a manifold below the tank where the liquid is valved to the desired compartments and enters from the bottom; (2) the method in which the fuel enters the compartment by means of a tube which is a part of the tank and which extends to within a few inches of the bottom of the compartment; (3) the method which employs an extension on the fill pipe at the loading rack.

The principal advantage claimed for sub-surface loading is in the vapor saving feature due to the elimination of surging and churning of the fuel in the compartment as it is being loaded. This particular advantage is discussed in more detail in another article in this issue.

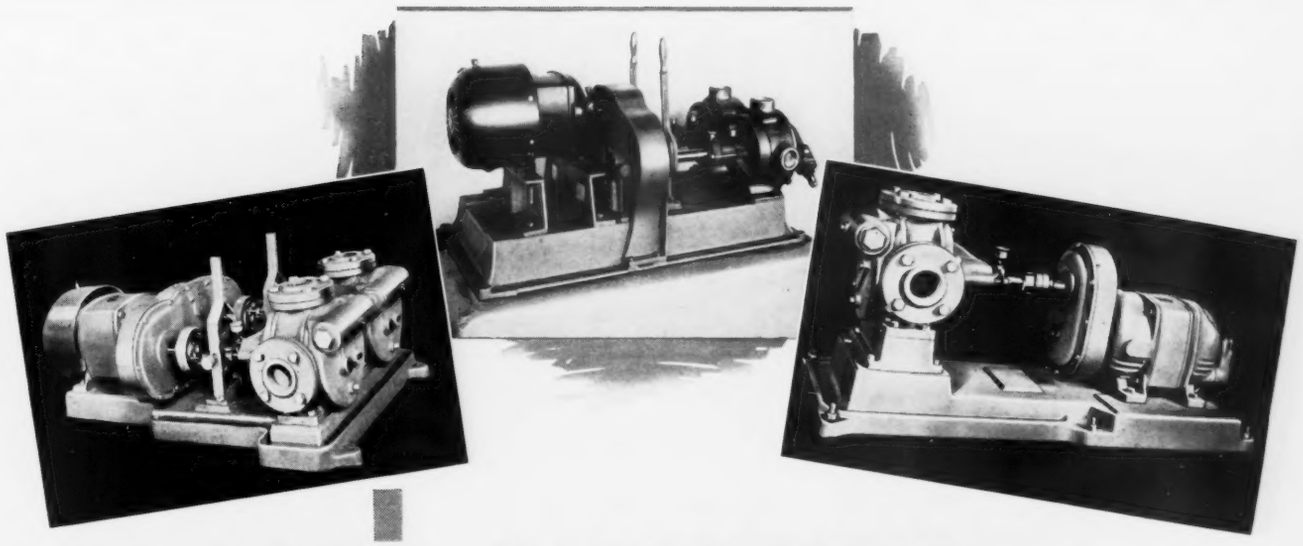
It is not difficult today to find enthusiastic users of semi-trailers among the oil fraternity. Tractor-trailer units really began to make their presence felt in the oil industry when the recent depression was in its swaddling clothes. Faced with the necessity of further reducing costs, operators began to turn to the trailer as a means of hauling more payload with the same power, or, to put it another way, transporting the same payload with less power.

One gasoline company, for example, was able to reduce its total number of units 35 per cent by putting tractor-trailers on the road. Yet, with only 65 per cent of their former equipment, 31 per cent more gallons of gasoline were delivered.

The use of semi-trailer units shows a tendency more and more toward bulk haul operation. One of the principal advantages of these units lies in the fact it makes possible continuous operation of equipment where an extra tractor unit is maintained. When the tractor truck requires servicing a reserve tractor kept for this purpose is coupled to the trailer and the



Sprockets and chains are eliminated in this type of pump mounting. Located inside the chassis the pump is driven by a direct drive shaft



LELAND MOTORS—

behind the scenes

LELAND fan-cooled, continuous-duty, explosion-resisting motors are just as efficient "behind the scenes"—on unloading and transfer operations—as are the hundreds of thousands of Lelands now driving the industry's dispensing pumps.

Many companies building pumps for bulk station service specify Leland motors of this type as standard equipment—and the major oil companies subscribe to their ability to meet the requirement.

Both have found these motors equal to the emergency when overload conditions arise in this class of service. Both have learned that the fan-cooling feature keeps them well within NEMA temperature rise limits even when operating under adverse conditions. Both have confidence in their ruggedness and general dependability.

THE LELAND ELECTRIC COMPANY

Canadian Address: Toronto

DAYTON, OHIO, U. S. A.

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Also totally-enclosed dual-shaft motors for bulk station service and open-frame motors for compressor drives.

LELAND
explosion-resisting
MOTORS

This square cornered tail construction is a new development that eliminates some of the costly operation of making compound curves without destroying the smooth flowing appearance. Note the hinged center section bumper that completely encloses the faucets and piping

• • •

load carrying unit continues its work. This provides a saving through the continuous operation of the load carrying unit and eliminates any curtailment of service to the customer.

From a sales standpoint alone, the meter has become practically a necessity in the delivery of fuel oil. It is looked upon as standard equipment by many operators, who feel that, aside from its ability to keep records in order and to cut down losses, it is indispensible as a selling argument.

It is expected that, with the trend of many of the larger oil companies to lease and sell their retail outlets, the use of meters on gasoline trucks will increase. This retail development will put the station operator in a position to tell the truck driver how many gallons he can use, and it will be up to the driver to supply him that amount. A meter will simplify and speed up the delivery on this type of transaction, and in addition will save the supplying company money on gasoline that might otherwise be lost through error in "sticking" the delivery.

The diesel-powered truck is being approached cautiously by oil company automotive men. Some are of the opinion its one advantage in lower operating cost will be eliminated by tax-hungry legislators as soon as it reaches a profitable degree of popularity and that diesel fuel will be taxed as is motor fuel. A number of the operators of large fleets have in use one or two diesel-operated trucks on an experimental basis. One large company is soon to put on the road a diesel unit simply for test purposes to find out (1) what operating economies it can produce, and (2) any lubrication and fuel problems that it may develop. In the few oil company fleets where diesels are in use, they are in transport service and not retail. The power-weight ratio is against the diesel for short hauls.

Showing the hinged center section bumper raised to give free access to the faucets

B. B. Bachman, chief engineer of the Autocar Co., in an S.A.E. paper on the subject of applying diesel engines to trucks, lists the conclusions drawn from his experience in this subject, as follows:

"(1) Diesel equipment for a given service will weigh more and cost more than gasoline equipment. Weight can be reduced by using engines more

Delivery of gasoline through meters is expected to become increasingly common as the number of leased stations grows

ONLY DODGE TRUCKS

GIVE YOU "*Pre-Proved*" ECONOMY!

SPRAY COOLED EXHAUST VALVE SEATS CHECK DISTORTION SAVE GAS
EXHAUST VALVE SEAT INSERTS MAKE VALVES SEAT TIGHTER SAVE GAS
4 PISTON RINGS INSTEAD OF 3. BETTER COMPRESSION SAVE GAS AND OIL
ALUMINUM ALLOY PISTONS ARE LIGHTER SAVE STRAIN ON ENGINE SAVE GAS
FULL-LENGTH WATER JACKETS COOL CYLINDERS THEIR ENTIRE LENGTH SAVE GAS AND OIL
THIS CUTS OIL TEMPERATURE 40 TO 50 DEGREES SAVES OIL
OIL

6 TESTED ENGINE ADVANCEMENTS SAVE UP TO $95 A YEAR IN GAS ALONE, SAY OWNERS

IF you are going to buy a low-priced truck, do these three things. First, check it for gas and oil economy. Next, check it for known, acknowledged quality features that you can see for yourself will save you money. Last, check delivered prices right in your community.

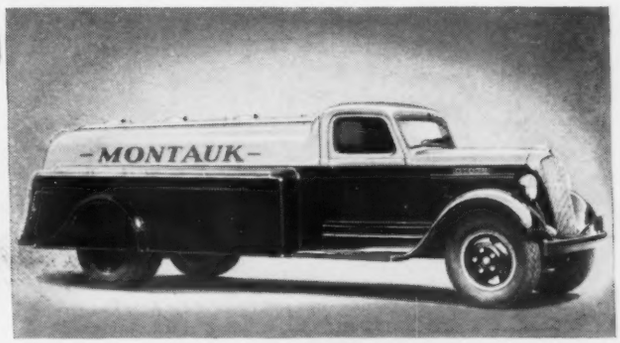
Thousands who check Dodge against the other two lowest-priced trucks are amazed at the extra quality Dodge now offers in trucks priced with the lowest.

DODGE DEALERS OFFER FREE GAS TEST

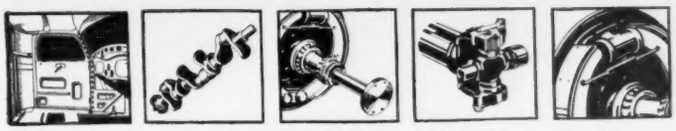
We invite you to make a "prove-it-yourself" economy test, say Dodge dealers. Owners say new Dodge trucks are saving them up to $95 a year in gas alone. But we don't ask you to take their word for it. Use the little machine that shows how far any truck, new or old, will go on a gallon of gas. Compare! Get the facts! Ask for the Dodge truck "Show-Down" score card. See your Dodge dealer today.

DODGE

Division of Chrysler Corporation



DOZENS OF QUALITY FEATURES SAVE YOU MONEY!



Dodge Safety-Steel Cabs, last longer, make your Dodge truck safer to drive.

4 Main Bearings, not the usual 3 bearings, make your truck last longer.

Full-Floating Rear Axle, lasts longer, easier to service, more dependable.

Roller-Bearing Universals check ruinous back-lash, lengthen truck life.

Genuine hydraulic Brakes, stop quicker and safer, save tires and brake linings.

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**List prices at factory, Detroit, subject to change without notice. Special equipment, including dual wheels on 1½-ton, extra. Easy terms gladly arranged to fit your budget, at low cost, through Commercial Credit Company.*

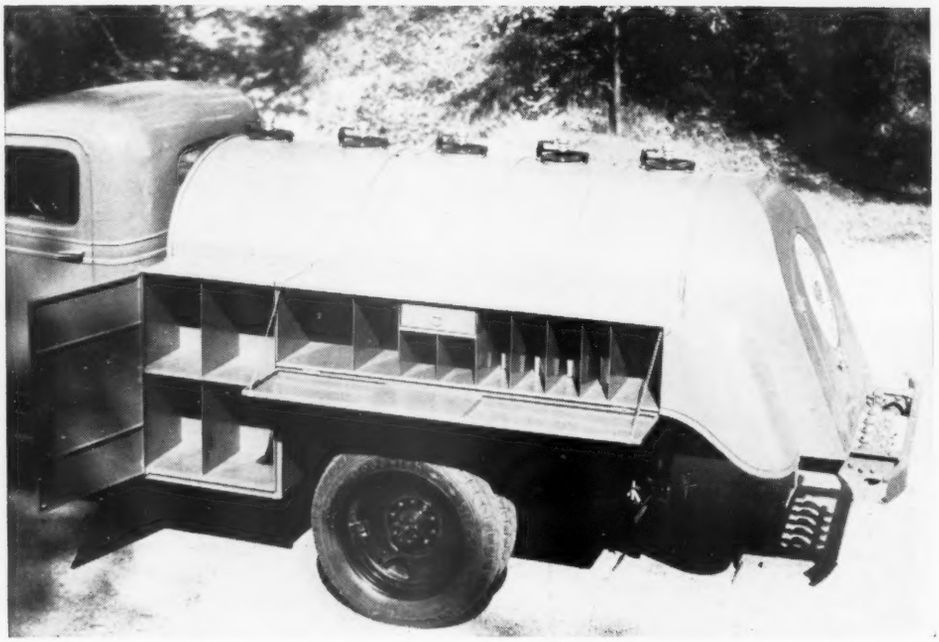
Dependable **DODGE TRUCKS**

NEW DODGE 2-TON WITH SPECIAL TANK BODY . . .

Dodge makes a sturdy, dependable truck to meet every type of hauling need. 6-cyl., 162" w. b. Chassis and Cab only (special tank body extra) **$1080***

$370*

½-TON CHASSIS 116 W.B.



One of the newest d - velopments in body design is the specialty cabinet for carrying automotive accessories on the truck. This cabinet has 9 compartments and a drawer built into the side rack, in addition to a 4-compartment vertical barrel carrier. The hinged door drops down to form a counter or desk

nearly comparative in size and scaling accessory chassis details.

"(2) The basic differences in the engine cycle need recognition in manufacture, service, and operation. These differences are not difficult to learn by competent men in either class.

"(3) While current maintenance does not seem to be greater, there is evidence that it may be necessary to do tune-up work on rings, pistons, etc., at more frequent internals and earlier in the operating life, which will unfavorably affect maintenance costs.

"(4) Even with such careful preventive measures, the overhaul period may arrive at an earlier time.

"(5) Fuel consumption can be expected to be approximately 50 per cent less than a gasoline engine. The total saving in cost will depend on many other items which renders it impossible to make an intelligent general statement.

"(6) Oil consumption may be about the same as in gasoline engines, but the difficulty of keeping the oil clean will call for more frequent oil changing and also more frequent filter element changes.

"(7) For best results somewhat different driving is desirable. The engine should be kept operating within a relatively limited speed range.

"(8) Changeover installations can be made if careful attention is given the particular case."

There has been little change in air brake design during the past year, with the exception of one feature. An air valve, controlled from the dash, is now in use on some units to reduce the brake pressure on the front wheels when driving on slippery roads. Cutting down the front wheel brake effort eliminates much of the danger of the rear end getting out of control in a skid. It is particularly advantageous when braking on a hill in icy weather.

There is no doubt about the progressiveness of truck transportation in the petroleum industry. Oil company transportation engineers and equipment manufacturers are continually using their ingenuity to bring about lower operating cost and faster delivery. Today they have developed light weight metals, full-flow fittings, accurate meters, trouble-free pumps, and many other devices. Tomorrow there will be still more improvements.

This cab over engine type of unit is finding wide use in congested areas. This one is owned by Sherwood Bros., Baltimore, and is shown receiving a supply of fuel oil at one of the company's many bulk depots in the city

New Methods for Reducing Vapor Losses in Truck Loading

FEW people can be found who will agree upon the extent of vapor loss that takes place in the loading of tank trucks. A continually increasing number, however, are forming the opinion that this loss is great enough to warrant some expenditures to stop or reduce this loss.

As a result of tests by some of the larger oil companies, the method of loading truck tank compartments is showing a decided tendency toward the sub-surface filler. This type of filling operation, in which the liquid is delivered into the compartment close to the bottom of the tank, greatly reduces the splashing and churning and consequent vapor loss that occur when the old overhead splash method of filling is used.

There are three general methods of sub-surface filling. One method, used by the Sun Oil Co., involves the use of a tight connection to an overhead filler which extends down below the bottom of the compartment to a manifold, from which point the fuel is directed up into the designed compartment through the emergency valve.

Another method of sub-surface filling is accomplished through a pipe, attached to the compartment, which extends from the top of the tank, either in the manhole or in a separate opening, to within two or three inches of the tank bottom. The liquid enters through a tight connection and is delivered at the tank bottom below the liquid level.

A third method, while not quite as effective in reducing vapor losses as the other methods, is still able to bring about an appreciable savings. In this operation an extension is attached to the loading rack fill pipe, which extends down into within a few inches of the tank bottom. One company has gone a step farther in this method by putting a 90-degree bend on the bottom of the extension so as to direct the fuel delivery away from the tank bottom, thus eliminating the initial splash and subsequent surging and churning.

It has been found that, even without a tight connection where the fill pipe enters the compartment, and where only a fill pipe extension is inserted into the tank manhole that the reduction in vapor loss is considerable. One of the major oil companies, operating a large fleet of trucks made tests to determine the possible savings by this type of sub-surface loading.

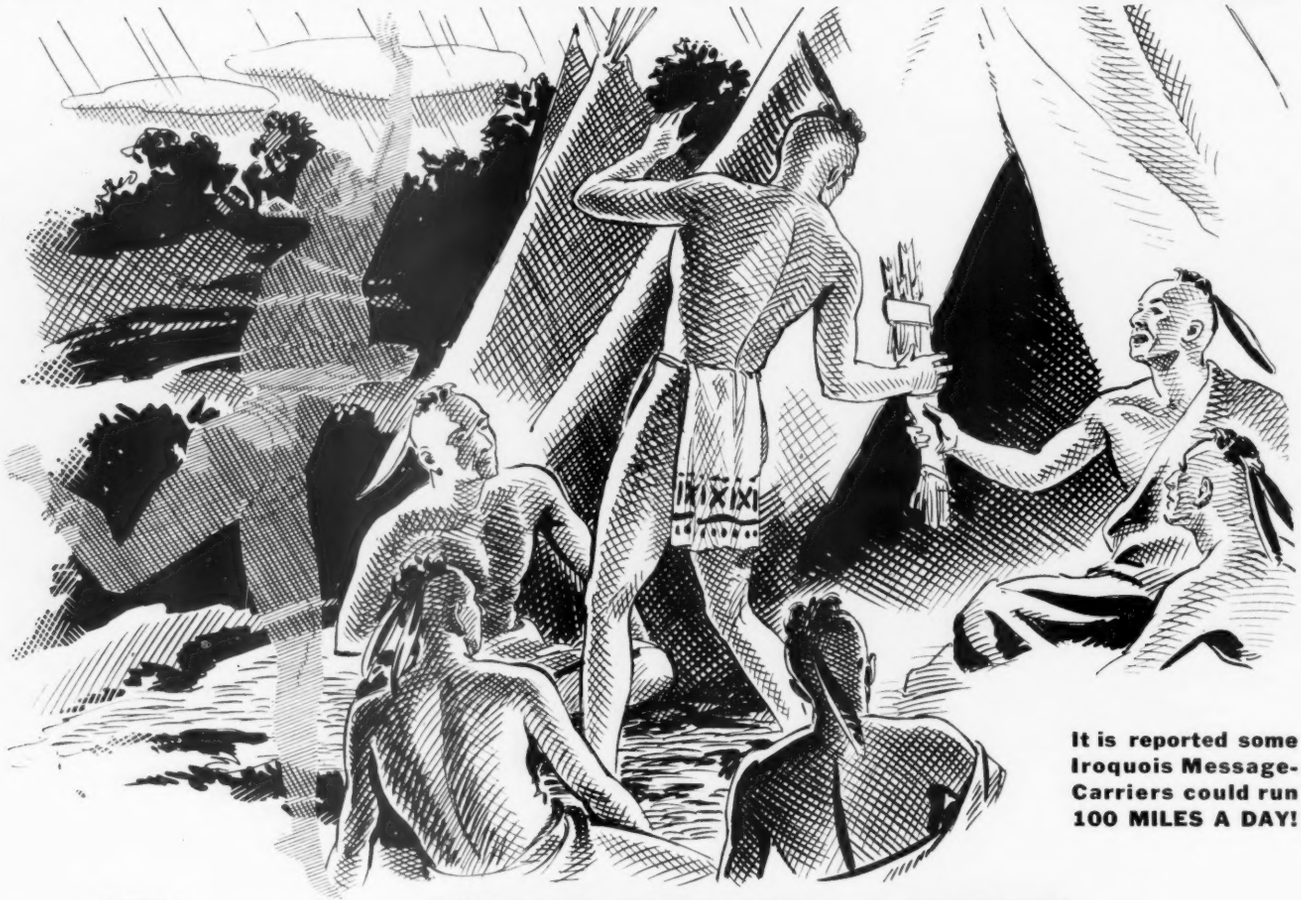
It was found that, when the old splash method was used, the vapor loss through loading amounted to .23 per cent of the volume handled. By extending the fill pipe practically to the bottom of the tank the filling loss was reduced to .05 per cent, or a saving of .18 per cent. Further experimenting indicated that even with only a 9-inch extension on the loading nozzle, a saving of .07 per cent of the volume could be made.

Another oil company, investigating the same type of loading method with the filler extension, claims it brings about a reduction in vapor loss over the splash method of as high as .5 per cent. One company's tests reveal that the splash system of loading results in a vapor loss of .5 per cent and that an extension on the fill pipe reaching only half way down into the tank compartment reduces that loss by half. Other similar tests would seem to verify that result.

From the tests that have been made it would seem safe to conclude that from .2 to .3 per cent

This type of sub-surface filler is located outside the hatch, and is equipped with a tight connector

LIKE THE MESSAGE-CARRIERS OF THE IROQUOIS



It is reported some Iroquois Message-Carriers could run 100 MILES A DAY!

NEUTRALS
150-3 10-20 Pour Test
180-3 10-20 Pour Test
200-3 0-10, 10-20 Pour
200-5 0-10, 10-20 Pour

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BRIGHT STOCKS
150-160 D Pour Test:
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CYLINDER STOCKS
No. 3 600-W Steam Ref.
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PARAFFIN OILS

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WAX
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MOTOR OILS
MARATHON
"Endurance" Motor Oils
TROXOIL Motor Oils
MULTILUBE
Motor Oils
PRIVATE BRAND Oils
compounded to jobbers' specifications

MARATHON LUBES are noted for Amazing Endurance . . . . .

● In America during the 17th and 18th centuries, the Indian tribes belonging to the Iroquois Confederacy had developed a system of trails by which special runners carried messages clear across the State of New York. Some almost unbelievable stories are told of these Indian runners. It is said that some of them could run 100 miles in one day!

Amazing endurance—the quality which made these Indian runners famous—is likewise the distinguishing feature of MARATHON LUBES. Several factors combine to make these oils extra-serviceable in today's high-speed motors. To begin with, they are made from Ranger paraffin-base crude, unsurpassed for the quality of its lubricating oil content. Again, all refining processes are supervised by expert operators and held under strictly scientific control. Finally, laboratory check insures constant uniformity and the full development of the heat-resisting qualities of the Ranger crude.

MARATHON Petroleum Products are proving to be business builders for jobbers. Write today for full particulars and quotations.

MARATHON OIL COMPANY, General Sales Offices: TULSA, OKLAHOMA
Division Office: Ft. Worth, Texas

MARATHON

of the volume handled can be saved by the use of sub-surface filling methods.

One of the most recent developments in truck loading is the device in operation at the bulk plant of the Wilson Oil Co., Detroit. It is made by the Oceco Division of the Johnston & Jennings Co., Cleveland. Here the loading apparatus is designed to recover the vapors in the truck tank as the filling operation is in progress and return those vapors to the storage tanks. There are five delivery spouts hung from the roof of the loading rack on trolleys. An arrangement of chains and levers are used to locate the spout over the manhole, spotting being accomplished quickly through the ability of the spout to be moved in any one of four directions. Once spotted, the fill pipe spout is lowered onto a specially constructed fitting over the manhole. Connected to the fill pipe is a large rubber gasket which fits snugly down over the manhole to prevent the escape of any vapor through the top opening.

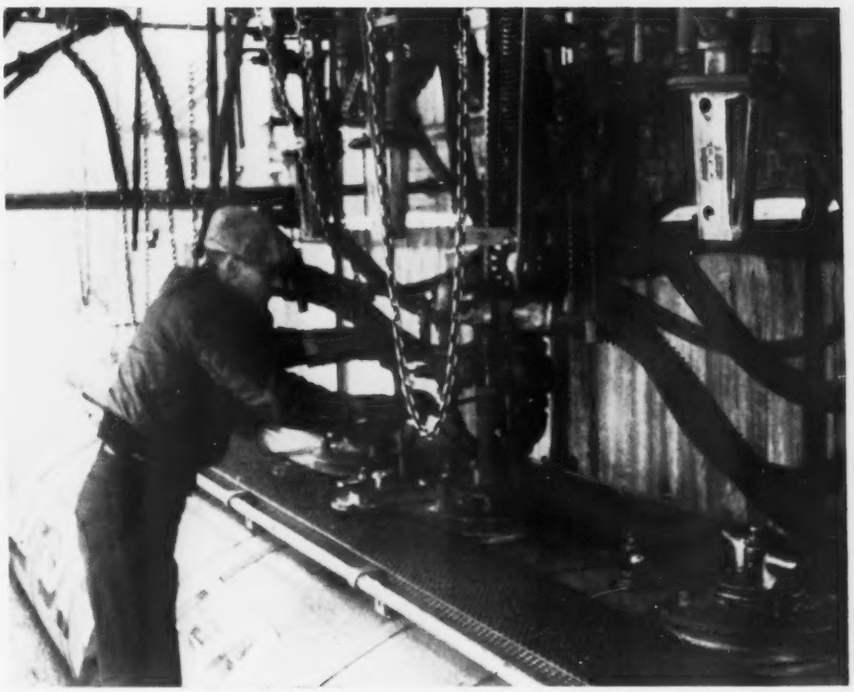
The section extending into the compartment below the gasket is about 8 inches long and is cone-shaped. This cone-shaped section serves a two-fold purpose, as an outlet for the fuel entering the compartment and also as a means of escape for the vapor in the tank.

This new type loading head allows the trucks to be filled at a rapid rate without discharging any vapor to the air. All vapors are taken back through a two and a half inch pipe to a vapor space in the storage tanks, which are kept under a few pounds pressure. Both gasoline inlet and vapor return lines go into this common head and are connected by flexible hose to the piping from the tanks. Valves are conveniently located just above the head and the whole device handles easily and rapidly, so that it takes less time to load a truck than by the old methods.

Gasoline enters the truck compartment through 3-inch lines, and the vapor leaves through 2½-inch lines.

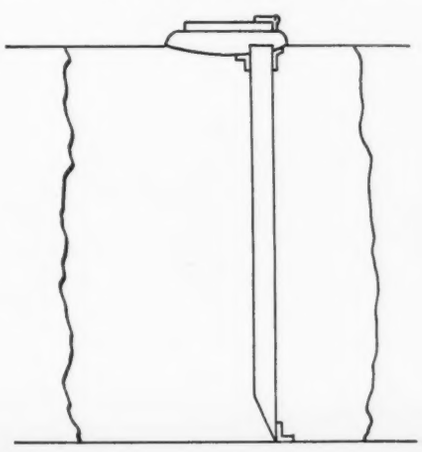
A glass tube located in the body of the housing just above the gasket contains a float which rises into view when the fuel within the compartment has reached the required level. This feature makes it unnecessary for the operator to remove the filler to top off the tank.

While this device has made very considerable savings in loading losses, Wilson Oil Co. is especially pleased with the elimination of the ever present fire hazard existing where trucks are loaded with open domes. While sizeable reductions in insurance rates are expected, the important factor is the greater safety for the company's personnel.

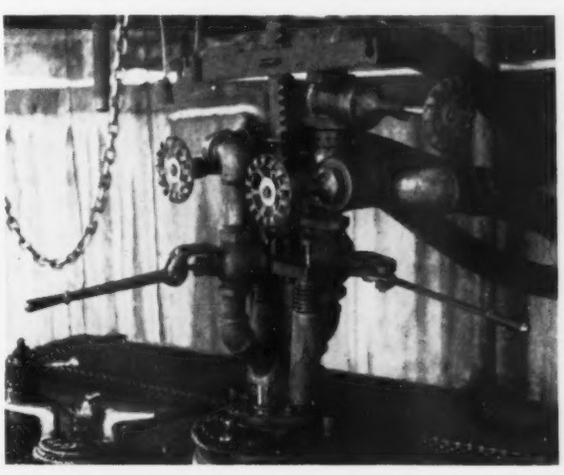


Here the operator is shown with his hands on the quick closing valves which control the fuel delivery and the vapor return lines. Note the shape of the delivery spout shown in the upper right corner. This vapor-proof loading rack is at the plant of the Wilson Oil Co. in Detroit

One type of sub-surface filler, in which the fill pipe extension is attached to the compartment. With this type of construction the operator can fill the compartment and watch the liquid level through the same opening



A close-up on the loading rack of the Wilson Oil Co. bulk plant in Detroit, showing vapor-reclaiming fill pipe fits down snugly over the compartment opening. Vapors resulting from the filling operation are returned to the storage tanks



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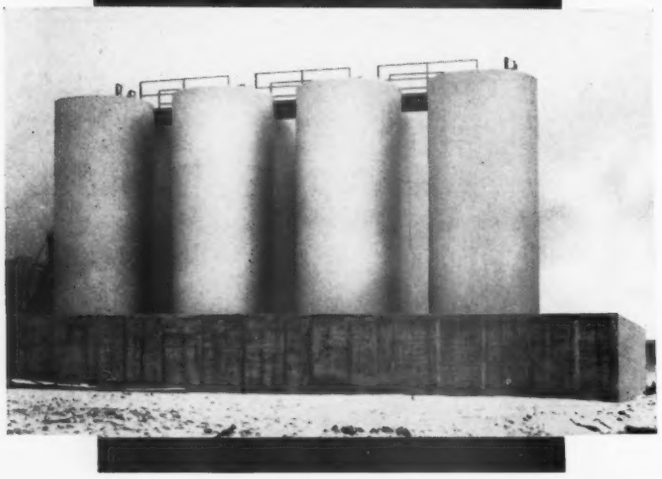

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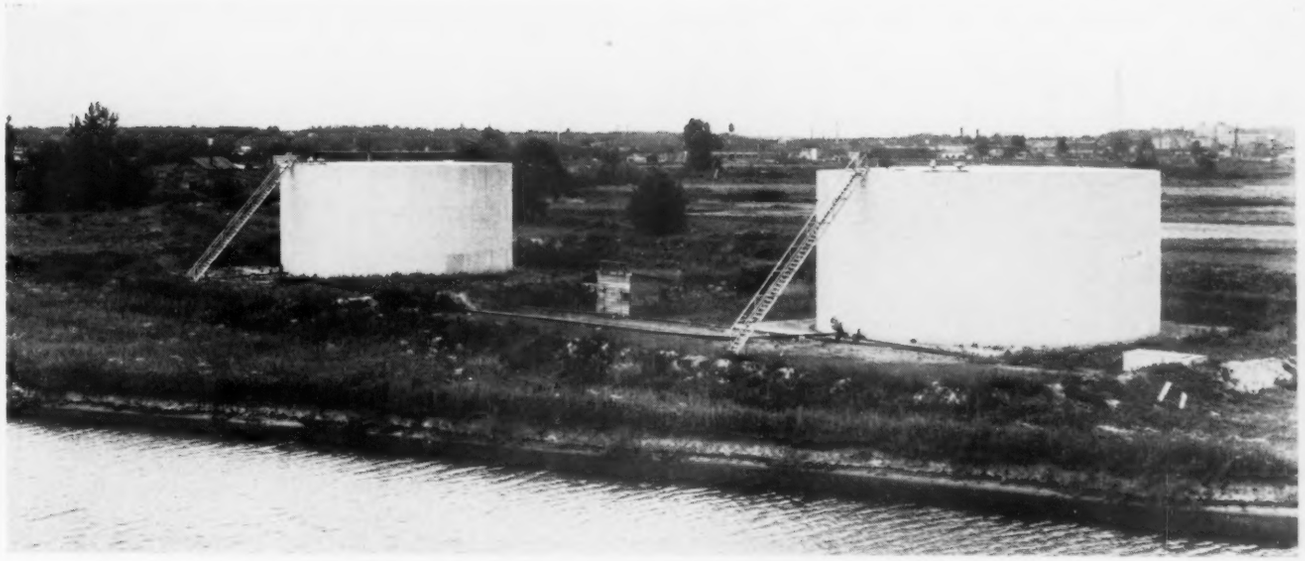
These two 20,000-barrel tanks are equipped with breather roofs. They belong to the Theisen-Clemens Co., St. Joseph, Mich.



Reducing Losses in Handling Gasoline at Bulk Plants

ATTENTION to the problem of vapor losses by oil companies has been pointed principally in the direction of large storage tanks, such as crude field tanks, refinery tanks, natural gasoline tanks and similar situations where the conservation cost can be spread over a large volume of material handled.

Bulk station losses have been neglected in this respect, largely because the individual plant volume was too small, and the superficial thought given to the subject led to the conclusion the conservation cost was too great compared to the results obtainable in vapor saved.

However, a recently published Bureau of Mines report, by Schmidt and Wilhelm, gave the results of evaporation tests on 10,000 and 12,000-gallon tanks which would seem to explode the above theory. According to this report the losses at bulk plants during the year 1932 amounted to over 235,000,000 gallons of gasoline. The report then goes on to show that, by the intelligent use of conservation equipment, these losses can be cut in half, which would mean a saving of $10,000,000 to $15,000,000. Many operators are of the opinion that the Bureau of Mines is far too conservative in its estimate of the savings possible with proper conservation equipment.

The bureau report gives 14 points for consideration in reducing evaporation loss at bulk plants as follows:

1. Vapor-tight tanks equipped with vapor-tight gage and thief hatches and pressure-vacuum relief valves.

2. Combination gage hatches and pressure-vacuum vents are sometimes desirable because they require minimum opening on roof.

3. When old equipment is reconditioned, close all unnecessary openings and connections on tank roof permanently.

4. Welded tanks reduce pinhole leaks.

5. All rods or cables should enter tanks through vapor-tight stuffing boxes.

6. Inspect hatches and relief vents regularly.

7. Set emergency vent valves high enough so as not to interfere with regular operation of relief valves.

8. Pressures held on vapor-tight tanks reduce breathing loss.

9. Floating roofs effective on working tanks. Tests indicate they also have possibilities on small tanks.

10. Breather bags and steel balloons have possibilities for bulk stations.

11. Tanks carrying one to five pounds pressure are economical for storage of gasoline at bulk plants.

12. Light colored paints, such as aluminum and white, reduce losses.

13. Insulation and housing for bulk station tanks offer a means of vapor saving.

14. Sub-surface filling of bulk tanks and tank trucks effects a considerable saving.

A number of companies are of the opinion that the use of meters at the truck loading rack will greatly reduce the total plant loss by eliminating measurement losses. Some believe that much of the loss at small bulk stations is due to faulty measurement of the products, rather than to evaporation. The overloading of a four-compartment truck by a

Suction lines entering the pump house at the Standard of Kentucky's Panama City, Fla., terminal. Expansion pipe risers, which also act as air cushions, are seen in the right foreground

half gallon in each compartment means giving away two gallons each time the truck is filled. If that truck makes 5 trips per day, the loss is 10 gallons. On a yearly basis that loss rises to over 3000 gallons, an amount that is certainly deserving of attention by any oil marketer.

How far is a marketer justified in going to reduce the losses at his bulk plant? Let's take a typical case, based on actual figures, as a means of answering that question. Assume the plant has four vapor-tight tanks of 20,000 gallons capacity each for gasoline storage. The plant handles 160,000 gallons of gasoline monthly. For a first consideration, assume that the tanks vent directly to the air through a nipple, there are no meters, and that no effort is made to reduce vapor losses at the truck loading rack. Under those conditions, a conservative estimate of vapor losses would be about 2500 gallons per month, based on the gallonage handled.

By the addition of two meters at the loading rack, at a cost of $300, a saving of 1000 gallons per month can be made, it is stated. At 10 cents per gallon for gasoline, this addition represents a saving per month of $100, which means the investment will pay for itself in three months and provide a saving of $1200 per year thereafter.

By the addition of four pressure-vacuum relief vents at a total cost of $100, another saving of 500 gallons, or $50, per month is estimated possible. In two months these vents will pay for themselves and provide an annual saving of $600 thereafter.

For about $60 extensions can be provided for the loading rack fill pipes to permit sub-surface loading of the trucks. This will bring about a saving of about 300 gallons per month, or $30. After paying out in two months, an annual saving of $360 is possible with the sub-surface filler.

Thus we see that, in this typical case, the addition of meters, pressure vacuum vents and fill pipe extensions offer the marketer a total saving per year of $2160, a saving which begins to accumulate three months after the installation of the conservation equipment.

There are many actual instances of the value of an investment in loss-reduction equipment. An independent marketer in the middle west reduced his losses 40,000 gallons per year when he installed two meters on his truck loading rack.

In Detroit, the Wilson Oil Co. reduced its bulk plant loss from 0.9 per cent to 0.309 per cent by the addition of pressure-vacuum relief vents and vapor-tight gages. In terms of gallons of gasoline, this investment meant a saving per year of approximately 3000 gallons. The tops of the tanks were interconnected by 2-inch lines to equalize the tank pressures. Each tank was equipped with a pressure-vacuum vent set at three pounds, and with a gas-tight automatic tank gage.

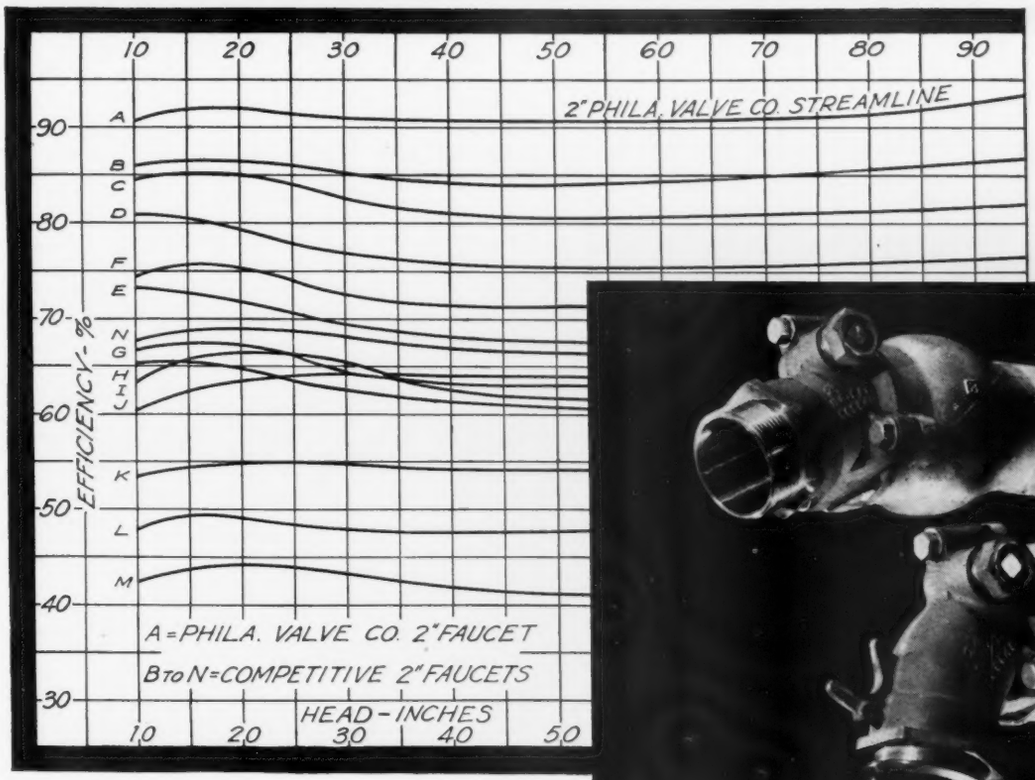
Shell Eastern was able to reduce losses 100,000 gallons in one year, a saving amounting to $5000, by the installation of

Can Losses at Your Bulk Plant Be Reduced Economically?

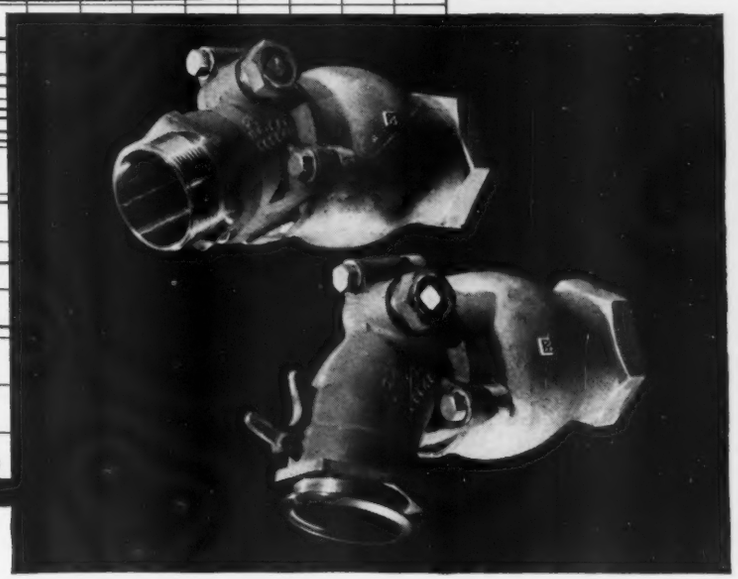
This table takes into account a bulk plant with four 20,000 gallon gasoline tanks. The plant handles 160,000 gallons of gasoline per month, and it is assumed that 60-degree corrections are made. The table attempts to show a typical plant and the saving and economic justification in the use of conservation equipment. Figures are based on a group of actual cases.

Condition of Plant	Loss Per Month (gallons)	Conservation Equipment Cost	Savings Per Month*	No. of Months For Equipment To Pay Out	Money Saved Per Year After Equipment Is Paid Out
Tanks venting to the air No meters No truck loading precautions	2500	.....	.....	....	.....
Meters added	1500	$300	$100	3	$1200
Meters added Relief vents added	1000	$100	$50	2	$600
Meters added Relief vents added	700	$60	$30	2	$360
Truck loading precautions added—TOTAL					$2160

*On the basis of 10 cents per gallon cost of gasoline.



This graph shows the efficiency in gallons-of-flow-per-minute of Philadelphia Faucets and all leading competitors. Note that under any head Philadelphia Faucets flow fastest.



10 Years Have Proved Philadelphia Streamline Faucets the Fastest MOST PROFITABLE Tank-Truck Fittings You Can Specify

If your interest in gasoline delivery is on a dollars-and-cents basis, the importance of Philadelphia Streamline Faucets is that your truck will spend less time making each delivery than with any other fitting.

If your interest is an engineering one, there are things you should know: (1) Philadelphia Streamline Faucets have the highest rate of flow on the market; this has been proven by actual tests; (2) They positively will not leak; (3) They can be spaced extremely close together; (4) Their discs can be replaced without removing the faucet from the piping.

Whatever your interest, you'll find it profitable to specify Philadelphia Streamline Faucets. Their addition to the efficiency of your present equipment will soon pay for their installation. You can have them in malleable iron with bronze seat and trimmings or all aluminum, 2", 2½" and 3" sizes, in bucket-type or bulk-type, with threaded tip or with adapter tip for Philadelphia Quick Connectors.

Be sure to specify Philadelphia fittings on new tank trucks. This includes streamline faucets. In many cases it has doubled the rate of flow for national oil companies. Write for prices or information.

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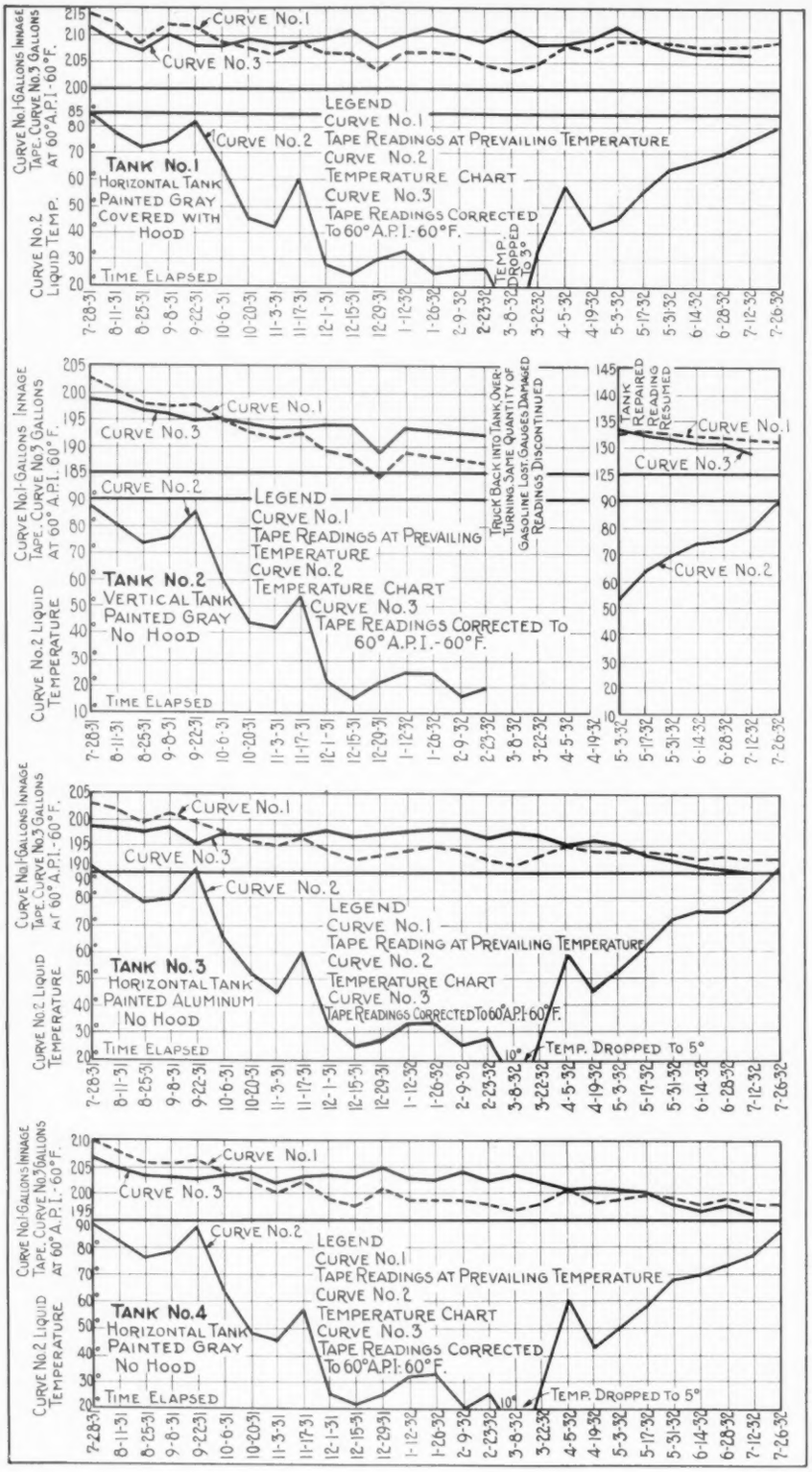


meters at all outlets at one of its terminals.

The Shell program of conservation has been a profitable one. Its total plant losses before the installation of conservation equipment were about 0.75 per cent. By the use of meters, sub-surface loading of tank cars and trucks, and the addition of pressure-vacuum relief valves, the company's total handling and evaporation losses now run about 0.3 per cent, or a saving of approximately 0.45 per cent.

Shell has standardized on vertical tanks at most of its small bulk plants, believing there is a reduction in evaporation loss in this type over the horizontal type tank because of the smaller amount of surface area of the gasoline exposed to the air.

On one of its vertical tanks of 20,000-gallon capacity, equipped with a turned-down nipple for a vent, the loss was found to be 1.2 per cent. By the addition of a pressure-vacuum vent and vapor-tight gage this loss was reduced to 0.3 per cent, a reduction of almost 1 per cent.

Engineers of the Pure Oil Co. are not as concerned about evaporation losses as they are about handling losses, claiming that the latter are by far the greatest in marketing operations. It is their belief that each time gasoline is handled it loses 0.5 per cent of its volume. Another large company is inclined to temper this figure to 0.25 per cent.

A Pure Oil engineer feels that the success of a pressure-vacuum vent on a tank is largely dependent upon the attention given it. The maintenance problem, he states, is of prime importance, for this type of unit requires frequent inspection and cleaning if it is to give its maximum efficiency. In his opinion the storage of gasoline

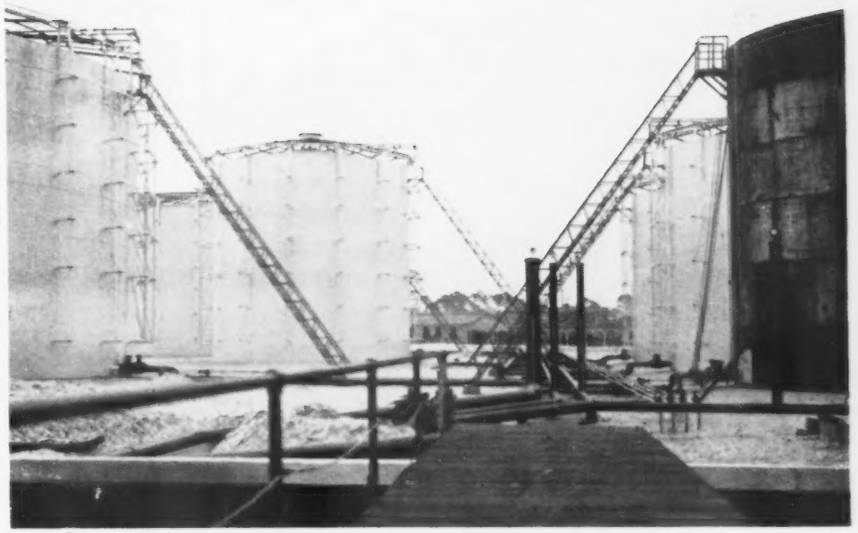
These four charts show graphically the results of evaporation tests conducted on four tanks by the Standard Oil Co. of Kentucky. The tests ran for a period of one year, with readings being taken several times daily. The object of the tests was to determine the extent of evaporation of gasoline in four representative types of tanks. As will be seen from the notations on the charts Tank No. 1 was horizontal, painted gray and covered with a hood. Tank No. 2 was vertical, painted gray, and having no hood. Tank No. 3 was horizontal, without a hood, and painted aluminum. Tank No. 4 was a horizontal type, painted gray, and similar in every respect to tank No. 1, except that it had no hood. Each tank had a capacity of approximately 250 gallons. The chart for each tank has three curves. Curve No. 1 is the gallonage reading of the fuel in the tank at prevailing temperatures. Curve No. 3 is the same as No. 1, but corrected to 60 degrees. Curve No. 2 represents the temperature of the fuel in the tank.. The curves on the charts were plotted at two-week intervals, as is indicated below the charts. At the end of the year the horizontal hooded gray tank showed the lowest standing storage loss, with 2.2 per cent. The tests are explained in more detail in the accompanying article

under pressure and under normal conditions shows the greatest saving in the control of the first pound, and that subsequent increases in pressure do not bring about corresponding increases in vapor saving. In other words, if a gasoline has a 10-pound vapor pressure, he believes that one pound of pressure on the tank will save 90 per cent of the vapor.

However, one large oil company did considerable study in connection with a 20,000-barrel high pressure tank of the spheroid type, and after a 4-month test found it had saved $1300 worth of gasoline, as compared to the same operation on a gas-tight cone roof tank.

This same company is revising its storage methods now in order to put more gallonage through smaller tanks, rather than less through larger tanks, as a means of cutting down evaporation losses. It is believed that over a period of months, by using the smaller tanks less total air space will be allowed to contact the liquid surface. This company is replacing its 60,000-gallon tanks with units of 12,000 gallons capacity as fast as feasible.

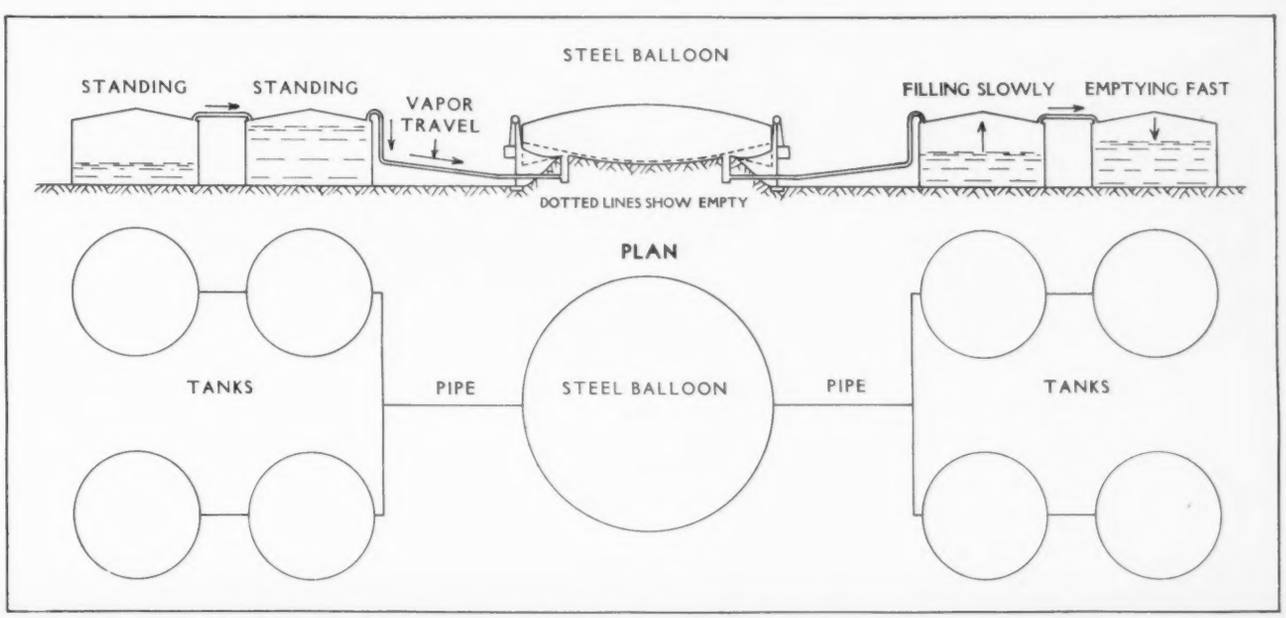
Through the adoption of spheroid tanks in certain operations, and by making their storage tanks gas-tight, adding pressure vacuum vents, cutting down the number of plants, and by putting more gallonage through smaller tanks, this company has been able to cut losses 0.3 per cent during the period from 1933 to 1935.



This view of the Standard Oil Co. of Kentucky Panama City, Fla., terminal, taken during construction, shows the framework built onto the top and sides of the tanks, on which the insulating hoods will be hung

On all of its tanks of 1000-barrel capacity or over, the Sun Oil Co. has installed gage wells which permit opening of the hatch without affecting the vapor pressure within the tank. The gage well consists of a pipe, open at both ends, which extends from the outside of the tank top down to within a few inches of the tank bottom. The hatch covers the top of the pipe so that, when it is opened, air is admitted only to the liquid level in the pipe. Gaging is done by measuring the liquid level in the pipe, and then correcting the reading by means of a "U" tube which indicates the pressure within the tank.

The Standard Oil Co. of Kentucky, in its many plants through the south, is taking many precautions to protect its products against excessive sun rays. For some time it has been the standard practice of this company to place hoods over its

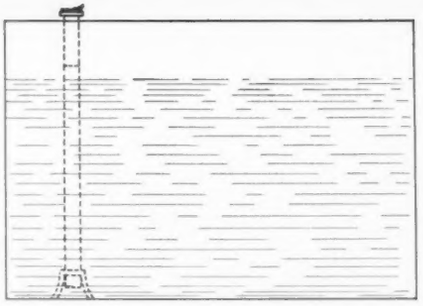


This diagram shows how the steel balloon receives and expels the vapor from the interconnected tank. No vapor is lost to the atmosphere in this type of operation

gasoline storage tanks. The hoods are generally made of corrugated iron and cover the top and sides to within 5 or 6 feet of the ground. Between the tank side and the hood is an air space of about three feet which serves as an insulator and protects the tank's contents from sudden changes of temperature. Particularly in the far south, where the days may be very hot and the nights cool, these hoods tend to prevent the breathing loss that comes with such extreme temperature changes by evening out the temperature variations within the tank.

Every precaution against leaks is observed. All pipe connections are welded, with the exception of a few flange joints where gate valves are set in the lines. At points where there is any back pressure on a closed valve, a lubricated plug type valve is used.

W. E. Glossop, the company's chief engineer, outlined to the writer a test which indicated how easy it is for leaks to develop in a line at a bulk plant. A section of 6-inch pipe was capped at one end. It was fitted with a thermometer and a 300-pound pressure gage, filled with gasoline and the other end capped. A 6-degree change in temperature sprung a leak in the pipe and put the gage out of commission, showing that, unless precautions are taken to either draing the lines or weld the joints, leaks are likely to occur.



On the larger Sun Oil Co. tanks gauging is done through a gauge well, as shown in this sketch. When the hatch is opened for gauging, the pressure within the tank is not affected. A "U" tube measures the pressure within the tank, so that the gauge well reading may be corrected to read the right level

Shell Eastern engineers have shown how costly a leak can be. They point out that a leak of merely one drop every second will result in the loss of 34 gallons over a month; or a steady drip can amount to as much as 700 gallons per month.

In an effort to determine the evaporation of gasoline in standing storage, the Standard Oil Co. of Kentucky erected four tanks in an exposed location in Louisville. These tanks were each 250-gallon capacity, three feet in diameter, five feet 5.5 inches long, and with 10-gage galvanized heads and 12-gage galvanized shells. All tanks were equipped with standard pressure-vacuum vents.

Thermometers were placed in the liquid and in the vapor space of each tank and other thermometers were located to give the temperature in the sun, in the share, and under the hood of one of the horizontal tanks. Each tank was equipped with a gage glass and gage stick, as well as with a gage to determine pressure within the tanks. Readings were made five times daily over a period of one year. A description of the tanks used in the test follows:

TANK No. 1—Placed horizontally on a timber cribbing approximately 20 inches above the ground. A hood constructed of wood framing covered with galvanized iron surrounded the top and sides with a minimum 18-inch air space. Tank was painted with a regulation capacity was calculated at 289.694 gallons.

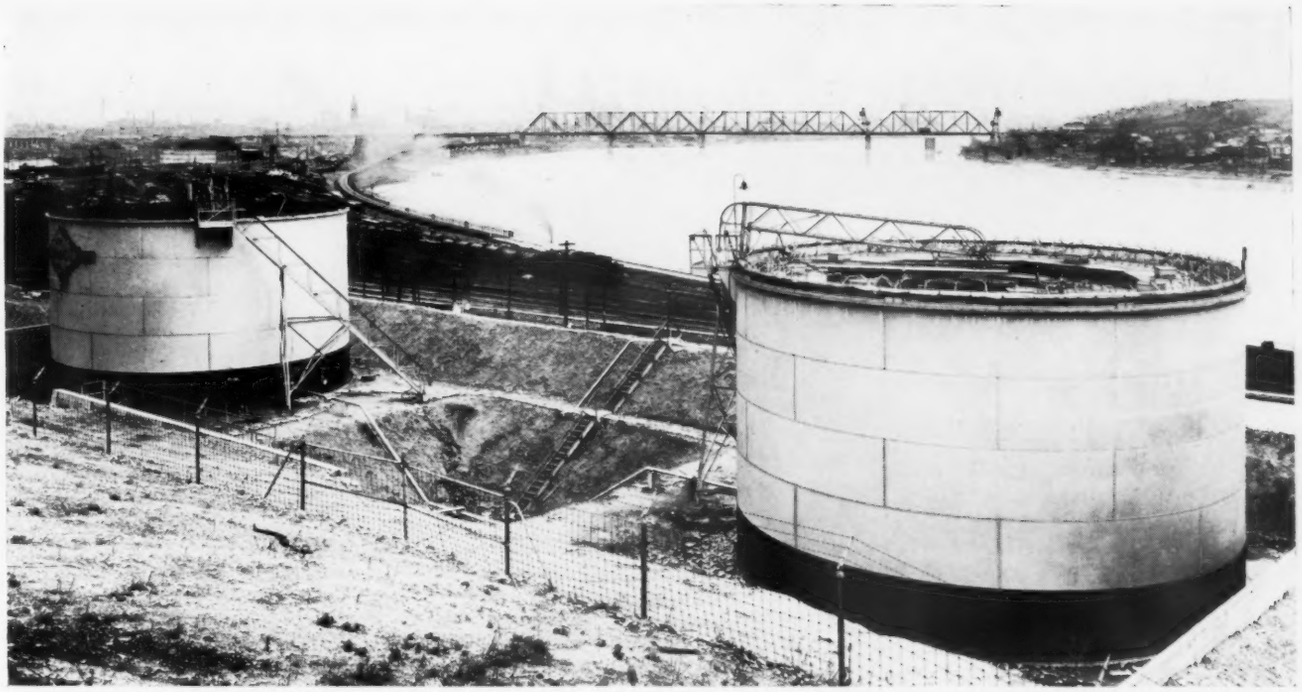
TANK No. 2—Total capacity, 288.59 gallons. The tank was placed in a vertical position on a sand foundation about six inches high. It was painted a regulation gray and had no hood.

TANK No 3—Tank capacity, 288.03 gallons. It was placed in a horizontal position on timber cribbing, 20 inches above the ground. It was painted with aluminum paint, and had no hood.

TANK No. 4.—Tank capacity, 289.12 gallons. It was placed in a horizontal position on timber cribbing, 20 inches above the ground. The tank was painted gray and equipped with various types of pressure vents throughout the test. The tank had no hood.

After a period of one year the results of the test revealed that (corrected to 60 degrees) the hooded gray horizontal tank showed the lowest standing storage loss with 4.559 gallons. The second best showing was made by the aluminum-painted horizontal unhooded tank with 8.764 gallons loss. The next in line was the unhooded horizontal gray-painted tank, showing a loss for the period of 10.320 gallons. The unhooded gray vertical tank showed the highest standing storage loss of the

Preparing to load a tank car at the Panama City, Fla., terminal of the Standard Oil Co. of Kentucky. Note that the 4-inch diameter extension for sub-surface filling has a 90-degree bend at the bottom. This eliminates initial splashing and subsequent churning. Notice the expansion pipe riser on the swing pipe



Two 48-foot floating roof tanks at the Cincinnati terminal of the Sun Oil Co.

group, with 11.345 gallons lost. Expressed in terms of percent-just given, are as follows: 2.2 per cent, 4.5 per cent, 5 per cent, and 8.1 per cent. The loss in gravity ranged from 1.5 to 3.1 degrees.

From these tests the Standard Oil Co. of Kentucky drew three conclusions:

(1) The hood is apparently justified in reducing evaporation losses, and the hooded tank is the most desirable method of storage of the types tested.

(2) Experiment indicates that from an evaporation standpoint horizontal unhooded storage painted with a light colored paint follows closely the horizontal hooded storage in desirability.

(3) Apparently unhooded vertical storage with a large percentage of vapor space in the tank is most undesirable from an evaporation standpoint.

One of the more recent conservation developments to capture the attention of the oil marketer is the steel balloon, a flexible breathing "bag", which eliminates the necessity of any vapor being released into the atmosphere at all, except in cases of excessive volumes. Vapors driven from the tanks by expansion of the fuel and by filling of the tanks may be drawn again into the tanks when temperatures are reduced or when fuel is drawn from the tanks.

At a Continental Oil Co. bulk station in Tulsa, where a 40-foot diameter balloon is in use serving all tanks, it was estimated that, at the end of an 88-day test, 134,000 cubic feet of vapor, or 4467 gallons of gasoline, were saved. This saving was calculated from an analysis of vapor samples taken from the installation at various points.

It has been estimated that an installation such as this will pay for itself in from 15 to 24 months, depending upon the price of gasoline.

While the steel balloon, the breather roof tank, the spheroid, and the floating roof are growing in use in all branches of the industry, many of the smaller marketers have yet to avail themselves of the dividends accruing from even the elementary methods of conservation.

First, every effort should be made to keep the tanks as full as possible at all times to keep down the vapor space. Roof fittings and the roof itself should be gas-tight. Pressure-vacuum vents should be added. Piping and fittings should be inspected carefully for leaks. Fill-pipe extensions should be provided for the sub-surface loading of tank cars and tank trucks. After these vapor saving precautions are taken, then the plant may be supplemented by tank insulation, high pressure tanks, balloons and other types of conservation equipment.

It is quite probable that the average bulk plant offers the most opportune field in the oil industry for a small investment in conservation equipment to show the greatest returns if intelligently applied.

Saves $150 a Month in Evaporation Losses at One Bulk Plant

A SAVING of $150 per month on a bulk plant handling approximately 200,000 gallons of gasoline in that period has been demonstrated as possible by a local oil company on the Pacific coast following a thorough study of evaporation losses at its bulk terminals.

Experiments carried on at a modern plant in the San Joaquin Valley, in California, indicated a wide open field for reducing these losses through the application of sound engineering principles and an improved pressure control system.

An ideal opportunity for making this analysis was presented when the Gilmore Oil Co., an independent California company, decided to consolidate its bulk facilities at Taft and Bakersfield into a single larger unit at the latter point. The work was done under the supervision of George L. Alton, manager of construction and maintenance for the company's southern territory.

By **JACK W. WESTSMITH**
N. P. N. Staff Writer

Records kept at the Taft plant had shown evaporating losses averaged about one per cent, which was more than twice the loss considered permissable for such an installation under good operating practices. Gallonage passing through this terminal was in the neighborhood of 100,000 gallons per month, with a consequent loss of 1000 gallons, which at 10 cents a gallon, meant $100.

In common with many Pacific Coast bulk plants of a similar size and type, the Taft plant was equipped with pressure and vacuum control valves, but because gauging was carried on through a trap in the top of the tank, the pressure on the liquid could not be carried at much above one pound. Even then, opening the trap to measure the liquid level caused a rush of air and an attendant loss by evaporation.

Added to this was a possible fire hazard resulting from the escaping volatile gas and an ever present accident hazard every time the plant operator climbed the 30-foot tanks. Gasoline was delivered to the plant at least once a day and sometimes twice, which meant the operator had to climb the tanks when the plant was opened in the morning and closed in the evening and before and after each delivery.

In considering the layout of equipment and facilities for the new Bakersfield plant, it was decided that two of the tanks at Taft could be used in addition to one that had been underground at the previous Bakersfield installation. Except for new paint, these tanks were not changed and the calibration remained the same. The two from Taft were set upright and the other, which had dome ends, on its side. The location, in a corner of a large yard, gives ample turning room for the 6000-gallon tank trucks and trailers.

New equipment on the tanks consisted of an automatic gauge for each, which, together with the pressure and vacuum systems, permitted the liquid to be carried under a pressure of between three and four pounds, or nearly four times the previous allowable. This set-up enabled the fluid level to be read from the ground and eliminated the climb up the tanks. The vacuum valve is set at two ounces.

The ordinary build-up of pressure through expansion will keep the pressure at about the required four pounds. When gasoline is withdrawn from storage this pressure is reduced, perhaps to the point where air will be drawn in, but unless the expansion is too great the gas laden vapors will not escape. Atmospheric conditions at Taft

Loading rack and pump house at Gilmore's Bakersfield bulk plant. Pipe connections below the platform are used in unloading the 6000-gallon tank truck and trailers. Cables for grounding the truck equipment may be seen hanging on the near-end of the platform

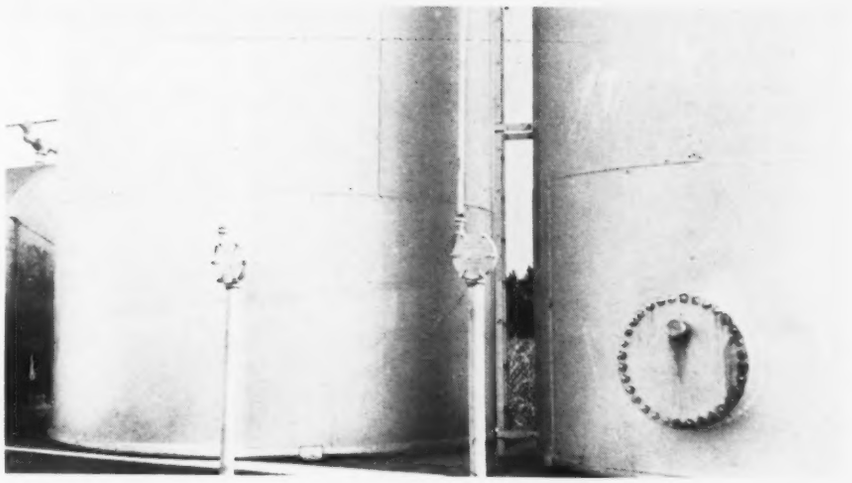
and Bakersfield are practically identical, with the temperature in the neighborhood of 100 degrees for the best part of four months.

This change in the system of operation permitted the company to make a thorough study of the relative merits of bulk storage under pressure. Where losses at Taft had run upward of one per cent, the new installation at Bakersfield reduced the total shortage to less than one quarter of one per cent, a 75 per cent saving in losses from evaporation. On a throughput of approximately 200,000 gallons of gasoline per month, this saving amounts to 1500 gallons or, as stated earlier, $150 a month.

During nearly a year in which this plant has been in operation it is estimated the net reduction in evaporation losses has more than paid for the initial cost of the extra equipment. Besides the dollar and cents value of the new facilities, Mr. Alton stresses their importance from the standpoint of fire and accident safety.

An average of two 6000-gallon loads of gasoline are delivered to the Bakersfield plant on each of five days during the week. This is unloaded through three-inch piping, double manifolded. The same pumps are used for unloading the transports and for loading the company's tank trucks. Pumping equipment consists of three units, one five-horsepower rotary and a three and a five-horsepower centrifugal, which permits the tank truck and trailer assemblies to be unloaded at a rate of 200 gallons per minute. Actual time for unloading the 6000 gallons delivered by these units averages nearly an hour, including checking, connecting the hoses and grounding the trucks. All trucks coming to the loading rack for either discharge or delivery are thoroughly grounded to water mains. This also holds true for all piping.

The three storage tanks have capacities of 26,000, 20,000 and 12,000 gallons respectively, for three grades of gasoline. This is considered ample for a plant of the size and type at Bakersfield and for the class of trade being served. To relieve pressure on the discharge lines at the loading rack, a $\frac{3}{8}$-inch pipe is run from just in back of the meters to the storage tanks. This equalizes the pressure in the main lines built up by increases in atmospheric temperature.



Automatic gauges in combination with pressure control systems have enabled the Gilmore Oil Co. of California to effect a 75 per cent reduction in evaporation losses at its Bakersfield bulk plant and have greatly decreased fire and accident hazard. Two of the gauges are shown in the immediate foreground and one of pressure control valves may be seen on top of the horizontal tank. A thermometer for recording temperature of stored liquid is located on the manhole cover

The loading rack is equipped with 2-inch meters and the discharge rate into the delivery trucks is maintained at less than 100 gallons per minute as a guard against excess evaporation at this point. Tank trucks operated by the Gilmore Oil Co. are meterized 100 per cent so that it is possible to keep a definite and accurate check of gasoline passing through the facilities, from the company's storage to that of the customer.

The need for this accurate check was seen when it was developed considerable losses resulted from careless loading of tank truck compartments not equipped with meters. If the fluid level was only slightly above the marker in a 600-gallon compartment the loss might range upward of a gallon and an accumulation of this nature amounted to several hundred gallons a month.

From one end to the other, this plant has utilized every means for checking loss or waste of gasoline. Recording forms are kept by the plant operators showing gauge and thermometer readings at the beginning and close of the day and before and after each bulk delivery to the plant. Meter readings at the loading rack and on the tank trucks complete the system and immediately show up any appreciable discrepancies.

A modern warehouse and workshop completes the layout at Bakersfield. This building, which also includes the office quarters, is located along the back property line in such a manner that trucks may approach the raised warehouse platform without difficulty.

Fire hazards are reduced by a cement floor in the warehouse, which is 30 feet wide and 60 feet long. Drums and merchandise are neatly arranged in groups to facilitate delivery, and the smaller packages of oil and grease are placed on shelves.

Modern equipment for washing and lubricating the tank trucks is located in the adjacent workshop, which is also 30 feet wide and 60 feet long. The company expects its operators to maintain the plant and equipment in first class condition and has provided the necessary means.

Possibilities for improving operating conditions both as a means of reducing losses and fire and accident hazard, as indicated in the study made at its Bakersfield plant, are being used in general modernization and new construction at the company's bulk facilities. Gilmore Oil Co. operates 49 bulk plants on the Pacific Coast.

Products Are Handled More Accurately And Faster in Today's Bulk Plant

By E. L. BARRINGER
N. P. N. Staff Writer

SPEEDIER loading of delivery equipment and stoppage of losses in all stages of handling products are principal objectives of current improvement programs for small as well as large bulk plants. Interest in the achievement of these results apparently includes all bulk plant equipment, from that in service for unloading tank cars through to the under-surface loading of trucks.

Speedier loading of delivery equipment is receiving most attention in larger cities where larger trucks are in service, where traffic conditions slow up movement through streets, and where time is a more important factor. In smaller communities and in farm trade a few minutes more or less is not so important, especially since the capacity of present truck tanks in service for the most part could not take advantage of full economies of high speed loading equipment.

Loading tank trucks in 10, 15 or 20 minutes is no longer quick time. The loading time at larger plants has slipped below the 10-minute mark and one company operating in a metropolitan area fills a truck just under 2000 gallons capacity in 4.5 minutes.

Equipment manufacturers report four-inch shut-off valves for truck loading racks going into service, and 400-450 gallon per minute pumps are finding a wider market in bulk plants. Sales of pumps of this capacity by one manufacturer have increased over 500 per cent in the past five years.

For smaller capacity bulk plants, handling a few tank cars at a time, 100-gallon per minute pumps generally are in service. Attention is centered on proper location of the pumps, on reduction of flow friction through the lines, and in improved powering of the pumps.

The day of the unit with six pumps mounted on a block driven by one motor is about past. Pump manufacturers report the trend is towards individualized units. Larger bulk plants and marine terminals have favored the single installations, each pump being operated by a motor. More motors are required for this installation, but the advantages are remote control of the pumps and in case of a failure only one unit, not several, is affected. Another advantage is in a simplified arrangement of pipes for the individual unit, against the maze of pipes and valves for manifolds when six pumps are grouped together. Twin units are favorites for smaller plants.

SEPARATE locations for the pump house, truck loading rack and warehouse are considered approved bulk plant layout.

Two-inch lines have come to be accepted as standard for smaller capacity bulk plants but the tendency is to use larger size where practical. Consideration of the pipelines starts with the tank car unloading rack, and the problems of getting products from the car to the pumps.

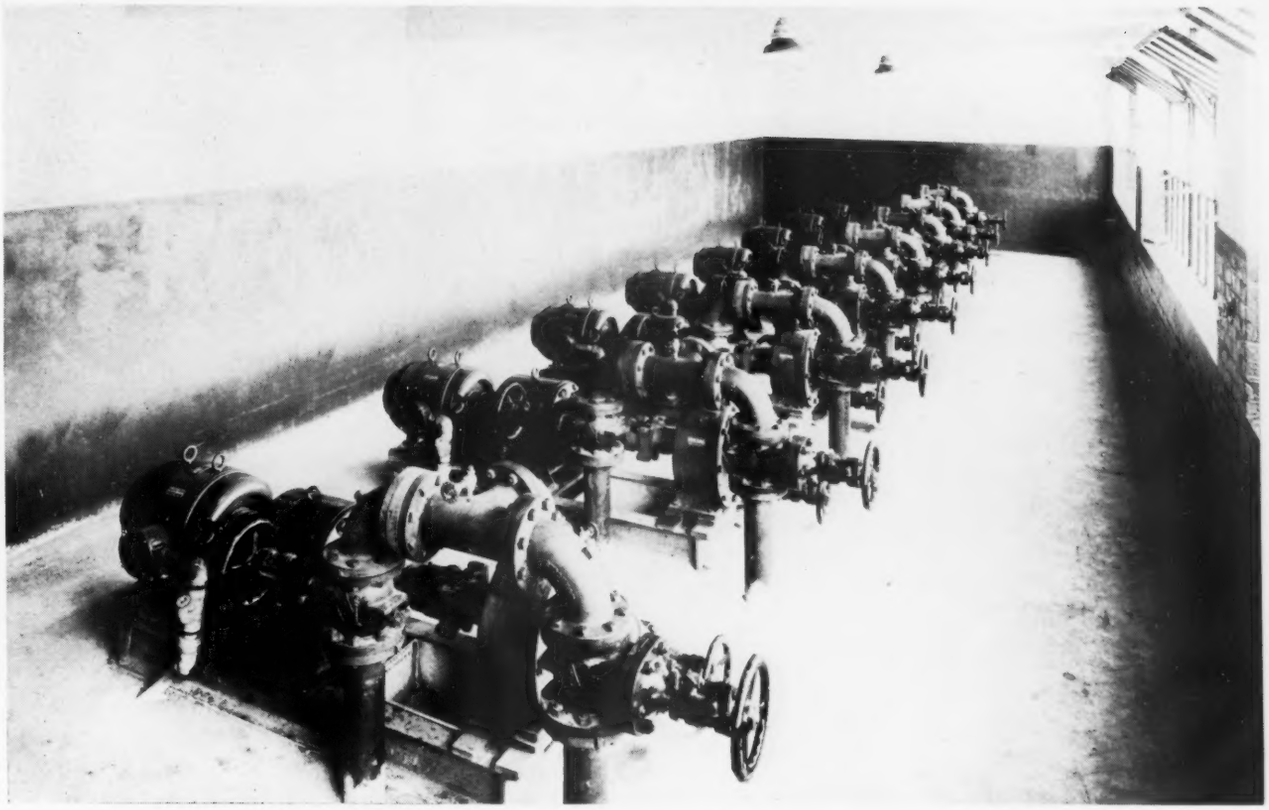
The pump house generally is placed as near the tank unloading spot as possible, to reduce the length of the suction line to the pump. Most smaller capacity bulk plants with 2-inch ports on pumps install 2-inch lines, although the pump would have a better head if there were larger pipe than the size of the port on the suction side. As the pump moves just so much liquid there is little benefit from oversize pipe on the discharge side for light products. For heavy oils larger discharge pipe than the size of the port is practical to overcome the loss through oil clinging to the side of the pipe and cutting down the size of the core.

Distance between the pump and storage also is a factor. One company that has 2-inch port pumps in general service has been installing 2½-inch port pumps and pipe when products move over 100 feet.

Some bulk plants court danger in installing headers between the various pumps, so that, by opening a valve, a pump can be put in service to move another type of oil. The dangers of contamination of kerosine and gasoline are well understood so that in the smallest of plants these products are kept separate through the pumps. Yet, for cases of emergency a header may link pumps of various products with permanent pipe and a valve, but if the valve is left open by mistake, or the seat leaks, contamination can take place. To avoid this danger and still meet emergencies, piping can be so arranged that pumps can be connected with a length of hose installed when needed, in place of the permanent pipe connection.

Dimensions of the bulk plant site have to be considered in laying pipe, but the less products change their direction of flow as they move through pipes the less the loss will be. Every 90-degree turn in a line is considered the equivalent to 30 feet of pipe, every 45-degree turn to 10 feet of pipe.

The outstanding fault of bulk plants, in the opinion of operating men of one company, is the lack of valves and strainers in the lines. This company installs strainers at the pump and also at the safety valve in the tank. This safety valve, which is reported lacking in too



Battery of 300-gallon a minute rotary pumps in Jenny Mfg. Co. plant at Boston. These are single units, with special gear reducers and standard electric motors. In case of motor failure another motor can be installed without disturbing gears

many plants, provides additional protection on the outlet line from storage, to be shut off by hand in case of failure, and to shut off automatically in case of fire.

Another factor in preventing bulk plant losses is in the proper accounting for all merchandise that is supposed to leave the plant. What savings have been gained through proper fittings on storage tanks, tight pipelines, correct pump installations, and efficient unloading of tank cars, can be dissipated in the transfer of products from the plant to trucks.

To stop these losses on bulk storage products there are meters to insure an accounting of each load and to insure the correct loading of trucks. For package goods, the stopping of these losses still remains within the province of the plant management.

The value of watchfulness on the part of the plant management in stopping losses is illustrated by the experience of one plant manager. He explained that he virtually lived his business life in the plant, keeping stock clean, and products in the proper place. In fact, he said he could enter the warehouse at night without lights and fill an order correctly.

The manager further explained that he personally moved products out of the warehouse for loading to trucks. Drivers did not fill their own orders, so the manager had a check on products as to grade and quantity that left the plant.

Metering from bulk storage, however, is on a more tangible basis, as the justification for meters in correct loading of trucks and in the accounting for every load that leaves the plant can be measured by the actual savings effected.

Meters have been widely accepted for measuring gasoline through service station dispensing equipment, so the metering of products out of a bulk plant in applying the same principle to wholesale transfer of merchandise. Measurements in manufacturing and distribution are generally taken in large quantities or wholesale basis, but somewhere along the line it is customary to begin to count each unit. This counting is done in metering gasoline at service stations and fuel oils off trucks, and the marketer who meters from plant storage to trucks is pushing the accurate counting back to the bulk plant. Such a marketer is delivering, not about 250 gallons of gasoline to a truck compartment, but an actual 250 gallons; just as the service station does not deliver "about 10 gallons" to the customer's automobile tank but an actual 10 gallons.

There are two major reasons for meter installations; first, for a record of every load that leaves the plant; second, for correction of inaccuracies in truck capacities and to keep loadings accurate. Yet there are also some intangible reasons.

One meter sales executive relates an experience concerning a Texas jobber. The jobber was not interested in meters, but was willing to gamble a few hours on a Saturday afternoon to talk about plant operations. During the conversation the jobber proudly related his hopes of retiring in a few years and selling the business to the fine

group of plant and truck men in his employment.

The meter salesman had his opening. He pointed out that all the men were honest but, if there ever were a case of dishonesty, the shadow of doubt would be cast on all the men. He said that metering gasoline out of storage would be a means of preventing dishonesty, actual or on account of an error and of protecting every man in the plant. The jobber bought meters.

Meters also are claimed to promote carefulness. Plant men and truck drivers know that each gallon is measured on leaving storage. There is a check on meter readings between various loads, and the meter reading of each load is checked against sales slips, so there is more care in handling metered products to prevent spillage, or errors in accounting for loads.

There is also the claim for faster loading of trucks when meters are used. There is no filling to about the full mark, then shutting off and resuming flow to bring the liquid level to the mark. With meters the compartments are filled to a given level, determined by meter readings, and the flow stopped.

In some cases meters enable a plant to reduce costs through eliminating the job of filling trucks by a plant man. Such was the case with a co-operative company plant in Indiana.

Without meters this plant always had one man on the job and among his duties was that of loading trucks. Meters were installed, one for each fill line at the truck loading dock, and the need for a plant man was eliminated. Each driver now fills his truck, recording on his report the meter reading before and after loading. The plant manager receives these daily reports and each night has a picture of what transpired at the plant, by tracing meter readings through individual reports.

The accurate accounting of all merchandise leaving the plant is a problem for every marketer. Human nature enters the proposition, as there seems to be a natural issue between truck drivers and plant men. There is quite a bit of bickering back and forth, much of it good natured, but in all the bantering attention is diverted from work and opportunities are created to make errors. Marketers cannot change human nature, but they can provide means of checking against errors.

DURING the day's work, with a couple of pick-ups at the plant, and dumps on rural or city routes, a driver has many transactions, and it is quite possible to become uncertain about quantities received. With the driver helping to load some products, while the plant man loads others, disputes can arise at the loading dock. In such disputes the marketer with meters on bulk storage, and an effective system in handling package products, has an accurate record rather than having to decide perhaps between the word of two employes.

Stock losses caused when truck compartment fill marks are hard to determine can be stopped through meters. Even if the compartment fill mark is accurate, meters serve in preventing under or overloading. Eye measurement is always likely to be a source of loss.

Truck compartment calibrations can be off through settling of the tank or by bulged bulkheads increasing the capacity of one compartment, while decreasing the size of another. Manipulation of valves also can cause a calibration to be in error, depending on whether the measuring of quantities starts with the internal check valve closed, or whether this valve is open and the liquid started from the draw-off valve. If the calibration was made with the internal check valve closed and trucks are filled with this valve open, then subsequent loadings may be off.

That marketers may be unintentionally loading inaccurately if depending on truck calibrations is evidenced by reports revealing results of calibrations by meters. In Louisiana a 1000-gallon truck was found to be over 51 gallons. In New England a marketer had been loading a 200-gallon truck for a farmer about every 10 days for several years. A meter showed the plant was loading 240 gallons into the truck, instead of the 200 gallons claimed capacity of the farmer.

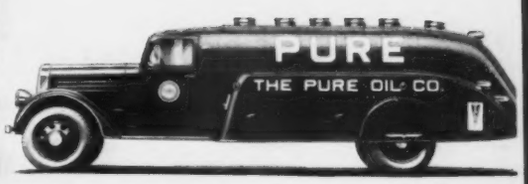
Effects of a dent on a tank compartment capacity is illustrated by the experience of a Michigan jobber. This jobber loaded by meter and knew capacities. Then a truck was in an accident, and a sizable dent made in the shell and tests showed that the dent had reduced capacity of the compartment by 10 gallons.

To determine savings in stock losses through the use of meters, a marketer has only to figure his loss per truck load through overloading, against the cost of the merchandise. In the case of the New England farmer's truck being out 40 gallons, in an estimated 30 trips to the bulk plant during the year, with gasoline representing an investment to the jobber of 12 cents a gallon, this plant lost $144 on that one customer.

A comparable savings would be indicated on a smaller loss through a company truck making frequent deliveries. If a truck were overloaded 5 gallons, making two trips daily, with 12-cent gasoline, the loss would be $1.20 a day. Over the year, with five work days to the week, that $1.20 daily would mount to $312.

The marketer who installs meters must make the proper use of this equipment, however. The purchase and installation of meters without using the readings does nothing to stop stock losses. As one meter salesman explained, meters do their part to prevent losses and insure accurate truck loading but it is entirely up to the marketer to make use of the potential ability of this equipment to prevent losses by using and acting on the meter readings.

WORLD-WIDE LEADERSHIP



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New Inland Waterways for Oil

U. S. Authorities Now Spending at Rate of $200,000,000 a Year to Make New Navigable Channels and to Deepen and Improve Existing Ones

STEAMSHOVELS and dredges, engineers and Uncle Sam's dollars are rapidly building in this country the greatest inland waterway system the world has ever known.

Today, barges carrying oil and petroleum products may move thousands of miles on its rivers and canals and each month adds new water highways and improves existing ones.

The Public Works program has given great impetus to the waterway program but the government has been spending millions on its rivers and harbors and flood control work ever since it allotted funds for the improvement of the Ohio River more than 100 years ago.

By June 30 of this year, it will have spent about $2,650,-164,219.95, of which $2,572,-425,218.95 represents expenditures of the Rivers and Harbors Engineers of the War Department; and $77,739,001, expenditures of the Tennessee Valley Authority on its great projects.

Average yearly appropriations for rivers and harbors amounted to only about $15,-000,000 in the years from 1882 to 1906, jumped to $37,500,000 per year for the 14 years through 1920, then on up to $75,000,000 per year from 1920 to 1932. In the last two years, expenditures have risen to approximately $200,000,000 per year, of which from $30,000,000 to $35,000,000 is for maintenance and the remainder for new construction work.

The Mississippi is being turned into a clear channel from the Northern Pacific Railroad bridge in Minneapolis to the Gulf. Its tributaries, the Missouri, Ohio, Tennessee and Illinois rivers and, in turn, their smaller tributaries, are pushing this great river highway back to Sioux City, Ia.; to East Brady, Pa.; to Knoxville, Tenn.

Tieing in with the Great Lakes and their connecting channels — the St. Lawrence river and the New York Barge Canal — traffic can move by water from the Mississippi even to the Atlantic ocean.

Down the Atlantic Coast, there stretches a 1450-mile intra-coastal waterway through the quiet waters of bays and harbors, canals and rivers from the Delaware to Miami, Fla. The last little segment of this, probably the longest waterway of its kind in the world, was completed a few weeks ago with appropriate ceremonies at Socastee bridge in South Carolina. With Long Island and the Cape Cod Canal, this route reaches on up to Boston.

Out on the West coast, a deepened navigable channel is being pushed inland on the Columbia river.

Improvements to the rivers of the U. S. will move rapidly this summer. The War Department expects to spend another $200,000,000 in the next fiscal year and the TVA's estimate is $32,198,816. The biggest jobs will be on the Mississippi, the Missouri and Tennessee rivers, and at Fort Peck and Bonneville's gigantic dams, which will greatly aid navigation.

On the Mississippi, the work is moving toward completion of a nine-foot channel in the Upper Mississippi from St. Louis to Minneapolis. There is now a six-foot channel all the way, with the nine-foot depth already available in some stretches. From St. Louis down to its mouth, the river grows deeper and deeper, to reach 30 feet depth or more near the Gulf.

The canalization of the upper river is about 70 per cent completed, the engineers say, with actual completion scheduled for 1939. At this writing, the estimated funds needed to complete the 26 locks and dams which will make the clear channel possible, are set at $58,000,-000, of which the engineers have $25,000,000 available for work this year and next. Thus they still need an appropriation of $33,000,000.

When the 1936-1937 fiscal years' work on locks and dams now under construction is finished, there will be 10 dams and one lock still to build.

The Missouri river project and the Fort Peck dam are closely related. The engineers have just about completed work which gives the Missouri 388 miles of six-foot-deep clear channel from Sioux City to where it empties into the Mississippi. When the Fort Peck dam, now 65 per cent complete, is finished — in 1938 according to estimates — this depth will be increased to 8 or 9 feet. Engineers have enough money to go on with this year's and next year's work on the dam. After that they will probably need $15,000,000 to complete it.

Regular freight service was inaugurated on the Missouri from its mouth to Kansas City in June, 1935, the first tow freight entering the river on June 7 and arriving at Kansas City on June 13.

The Tennessee river improvement project is an important one, for it ties in with so many other possible exten-

Birmingham's Water Terminal

In the wild, high hills of Alabama, 17 miles west of Birmingham, is the Port of Birmingham, better known as Birmingport. It is reached from Mobile, on the Gulf, up the Tombigee and Warrior rivers, through 17 locks and dams. From a primitive dock and a few pipelines a really great volume of river traffic is done. Here is the shipping point of the Tennessee Coal & Iron Co., the Pure Oil Co. and others. The operation is rough, rugged and surprisingly simple. None of the complicated machines and expensive construction one finds at big ocean and lake docks are seen here. There is just a big warehouse at the water level for the package stuff, a couple of sidetracks half way up the steep river bank, a gin pole for the heavy articles and a few pipe ends sticking out of the hillside for the gasoline

sions and improvements which will open up stretches of country possessed of valuable mineral and other natural resources, neglected in the past because of lack of cheap water transportation. In these sections, the railroads have had practically a monopoly on transportation since the days of ox carts.

Bars, steep slopes, shoals — of which the most famous are Muscle Shoals — rock ledges, have all contributed to making the Tennessee impracticable for commercial navigation over much of its 650 miles. Now, however, with the Tennessee Valley Authority program, the entire river from Knoxville to Paducah, where it joins the Ohio, will be turned into a nine-foot navigable channel.

The plan includes a series of nine high dams and one low lift lock. Of these, Wilson Dam at Muscle Shoals is finished, Wheeler Dam is practically completed, Pickwick Landing Dam is well under way, the Guntersville and Chickamauga dams are just starting and three others, Gilbertsville, Watts Bar and Coulter Shoals dams, have not been begun.

In addition to the main river dams, there are to be three tributary storage dams, of which one, the Norris Dam, is practically completed.

But TVA does not stop with these dams and locks. It considers the possibilities of further improving navigation by other projects on tributaries, by co-ordinating its projects with projects on the Ohio, and it is

doing research work on plans for terminals on the Tennessee, with particular attention to their ownership by federal state or local governments.

A recent report of TVA to Congress said: "Should economic conditions at any future time justify the expenditure, the nine-foot navigation channel can be extended from the head of the main Tennessee river up the Holston river for 140 miles to Kingsport, Tenn., near the southern line of Virginia; on the Duck river for 150 miles from its junction with the Tennessee to the phosphate fields of middle Tennessee, on the Elk river for about 80 miles to another phosphate region, and on the Clinch and Hiwassee rivers."

The Authority also reported that navigation on the lower Tennessee can be co-ordinated with that on the Ohio, Cumberland and Wabash rivers by a dam on the Ohio river at the mouth of the Cumberland, a dam across the Tennessee near its mouth and a connecting channel between the Tennessee rivers so as to provide a little over 550 miles of continuous navigable waters on a single level.

TVA told Congress "plans for the development of navigation on the lower Tennessee are being worked out so that the larger possibility shall not be lost, though the immediate development of the Tennessee need not be retarded."

It also suggests the development of a navigation channel from Mobile Bay up the Tombigbee and Warrior rivers to the Tennessee, which would link the Ohio river system and the Pittsburgh region to the Gulf at Mobile, providing a short all-water route from the Gulf to large areas in Tennessee and Alabama and, by a comparatively short truck or rail haul, to western North Carolina and Virginia and northern Georgia.

The Tombigbee river now has an eight-foot channel from its mouth above Mobile, Ala., to the head of navigation above Aberdeen, while its tributary, the Warrior, which joins it at Demopolis, has the same channel depth to its head waters near Birmingport, Ala. They are to be deepened to nine feet.

The Ohio river has a nine-foot channel for all of its 981 miles from Pittsburgh to its entrance into the Mississippi river at Cairo. Dams are being built now at Montgomery and Gallipolis, to replace existing structures. They should be completed by next year, the War Department engineers say.

Two tributaries of this river, the Monongahela and the Allegheny, have nine-foot channels for considerable of their length. The Monongahela has nine feet from Pittsburgh to Lock 10 at Morgantown, W. Va., and seven feet beyond to Fairmont, W. Va. On this river the $15,700,000 Tygart Valley Dam is now under construction to provide for low water periods.

The Allegheny has a nine-foot depth to Lock 8 near Templeton, Pa., and when Lock 9 at Rimerton is completed next year that depth will be extended to East Brady, Pa.

The Cumberland river, another Ohio tributary is to have the press gates raised at its Lock F near Eddyville, 147 miles below Nashville, to give a depth of better than six feet. An investigation is underway to consider the advisability of a deeper channel in this river

Lock 17 At Birmingport

Seventeen locks are necessary to raise barges from the sea level at Mobile, Ala., to the present water level at Birmingport, the water terminal for Birmingham, 431 miles upstate by the Tombigbee and Warrior rivers. This picture shows four feet of water pouring over the top of Dam 17 during the recent high waters in the south. By means of the 17 locks, having a total lift of 242 feet, an eight-foot channel is available from Mobile beyond Birmingport

N. P. N. says this is an advertisement but we say it's national petroleum news.

This spick and span Phillips 66 super service station is one of the many accounts served by the Memmott Oil Company, Rapid City, South Dakota. Operated by Jesse Errin and A. L. Curtis, it has shown consistent gains. Interest in the Black Hills boomed when Coolidge vacationed there. This summer the Memmott Oil men predict that more people than ever will take advantage of the Black Hills' beauty and, because the Sitting Bull Crystal Caverns and the Sioux Indian pageant are daily attractions near Rapid City, they expect this area to be the focal point for tourists. And more tourists will mean more business

Sales Increase Helped By Courtesy and Cleanliness

RAPID CITY, South Dakota

THE National Geographic Society's famous balloon which shot up to the stratosphere from here last summer isn't all that's been going up around this great tourist mecca in the Black Hills. For sales of the Memmott Oil Company have been rising just as spectacularly. And unlike the famous balloon, they're still going up.

Larry Memmott, head of the jobbing organization which bears his name, gives credit for the upward trend of his sales curve to his company's emphasis on cleanliness around Memmott stations, courtesy on the driveway, and constant, unremitting, across-the-board selling. He is a great believer in the time-worn theory that "you might as well ask 'em to buy."

Memmott Praises Product Pull

But Memmott also gives credit to the quality and consumer acceptance of the products he sells—the well-known Phillips 66 line manufactured and sold by the Phillips Petroleum Company. He writes Phillips officials: "We started to job Phillips products in November 1933 but did not put our full time into the handling of them until the spring of 1934. Our increase in the sale of gasoline was from one car per month in November 1933 to a yearly average of more than eight cars per month at the present time."

While gasoline sales were booming thus, this South Dakota jobber was giving a good demonstration of what it takes to be alert. "Store traffic" was increasing; therefore, opportunities for other sales were mounting. The men on the Memmott driveways apparently heard these opportunities banging away at the doorbell, for Memmott continues in his letter: "This great increase in gasoline sales was not all. We had always been strong in stressing long-margin items such as oil and grease so we didn't look for any great gain in these items. Yet after signing with Phillips our oil and grease sales jumped from one car every six months to better than one car every two months now; and accessory and tire sales have increased in proportion."

Hard Work and Good Products Aid Pioneering

"It should be borne in mind that these increases came even though we were relatively new in this section of the state and were pioneering a product new at the time to South Dakota. We've worked hard. We've kept our stations clean and we've stressed courtesy with selling. We give plenty of credit though, to the quality of Phillips products. Customers become loyal supporters after they're once brought onto the driveway. And we want to say a word for Phillips advertising support which has helped build consumer acceptance. With your excellent products and your cooperation we anticipate further increases in the future."

The same excellent products and the same excellent cooperation are available to other jobbers who are interested in enjoying the same kind of excellent sales increases. Write, wire or phone

PHILLIPS PETROLEUM CO.

Bartlesville, Oklahoma

Chicago Minneapolis Peoria Indianapolis
Des Moines Omaha St. Louis
Kansas City Wichita Tulsa Amarillo

Be Sure Every Trailer Tank a GENUINE (NOT A FALSE)

1. To Increase Structural Strength

2. To Provide Each Compartment Expansion Space In Direct Proportion To Its Capacity

Safety is more and more the all important requirement in the transportation of gasoline on the highways.

Safety calls for extra structural strength. To a greater degree than ever before this is being engineered into Butler Truck and Trailow-Tanks while at the same time reducing the dead load. The increased payload which they are capable of carrying with a long margin of safety make them the pacemakers in low cost oil transportation.

Safety also calls for flexible instead of fixed and inadequate facilities for taking care of the expansion of high volatiles in transit under the intensive highway heat conditions. The Butler Turret Dome provides for this.

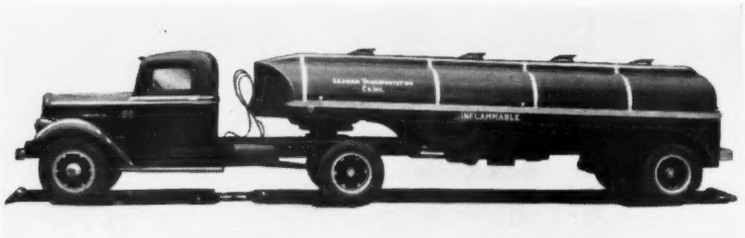
Before you buy any truck or trailer tank, consider well these and other advance features developed by Butler engineers, the oldest, most capable staff in oil tank manufacturing.

BUTLER TRAILOW-TANK

AND TRUCK TANKS

Airfoil Streamlined, Semi-Streamlined or Standard

Standard Model Butler Truck Tank



Standard Model Butler Trailow-Tank

Semi-Streamlined Butler Truck Tank

Airfoil Streamlined Butler Trailow-Tank

and Truck Tank You Buy Has BACK BONE

The Butler Turret Dome Forms Flexible Expansion Chambers

The Butler Turret Dome is not just a false housing atop the tank. Formed in the shell it provides continuous expansion space the full length of the tank. For the first time each compartment of the tank regardless of size is given an expansion dome sized in direct proportion to its individual capacity. The hazard of excess pressure and consequent loss by escaping vapors is reduced to the very minimum.

The Butler Turret Dome Increases Structural Strength

False housing atop tanks for streamline effect add weight and increase explosion hazard. The Butler Turret Dome is a structural strengthener formed directly into the top of the tank shell. (See illustration above.) It gives Butler Truck and Trailow-Tanks a **BACKBONE** which functions as an over-truss. Tied by partitions, heads and gusset bracing directly to the understructure of the tank, the Turret Dome shares in carrying the load. Fill openings are set flush with the top without countersinking into hazardous false housing. Streamlined fill covers are hinged and are quick opening, tight closing by means of the double acting winged handle.

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from Harlan county, Ky., to the Ohio near Smithland, Ky.

In the southeastern coastal area, where much of the oil tonnage moves by water, many waterways have been, or are being, made more navigable.

Rivers like the Savannah, the James and the Cape Fear, which empty into the Atlantic, receive great quantities of oil in coastwise shipments from points further south and from the Gulf and carry it inland to sizable river port cities. From these stops, it can be easily trucked further inland over considerable areas.

The Savannah river is to have a clear channel six feet deep and 75 feet wide for 196 miles from Augusta, Ga., to the head of the channel for deep-craft ocean-going vessels 22 miles above Savannah Harbor. Work is actively in progress on construction of a lock and dam at Savannah Bluff to obtain this project width and depth. The lock is completed and lock gates, gate operating machinery and valves are installed, the timber crib and riprap outside and adjacent to the river wall have been completed, the first cofferdam is finished and sufficient funds are available for the Rivers and Harbors engineers to complete the entire project by June 30 of this year.

The Cape Fear river is to be made navigable from Cape Fear, where it empties into the Atlantic Ocean, up to Fayetteville, N. C., 115 miles above Wilmington.

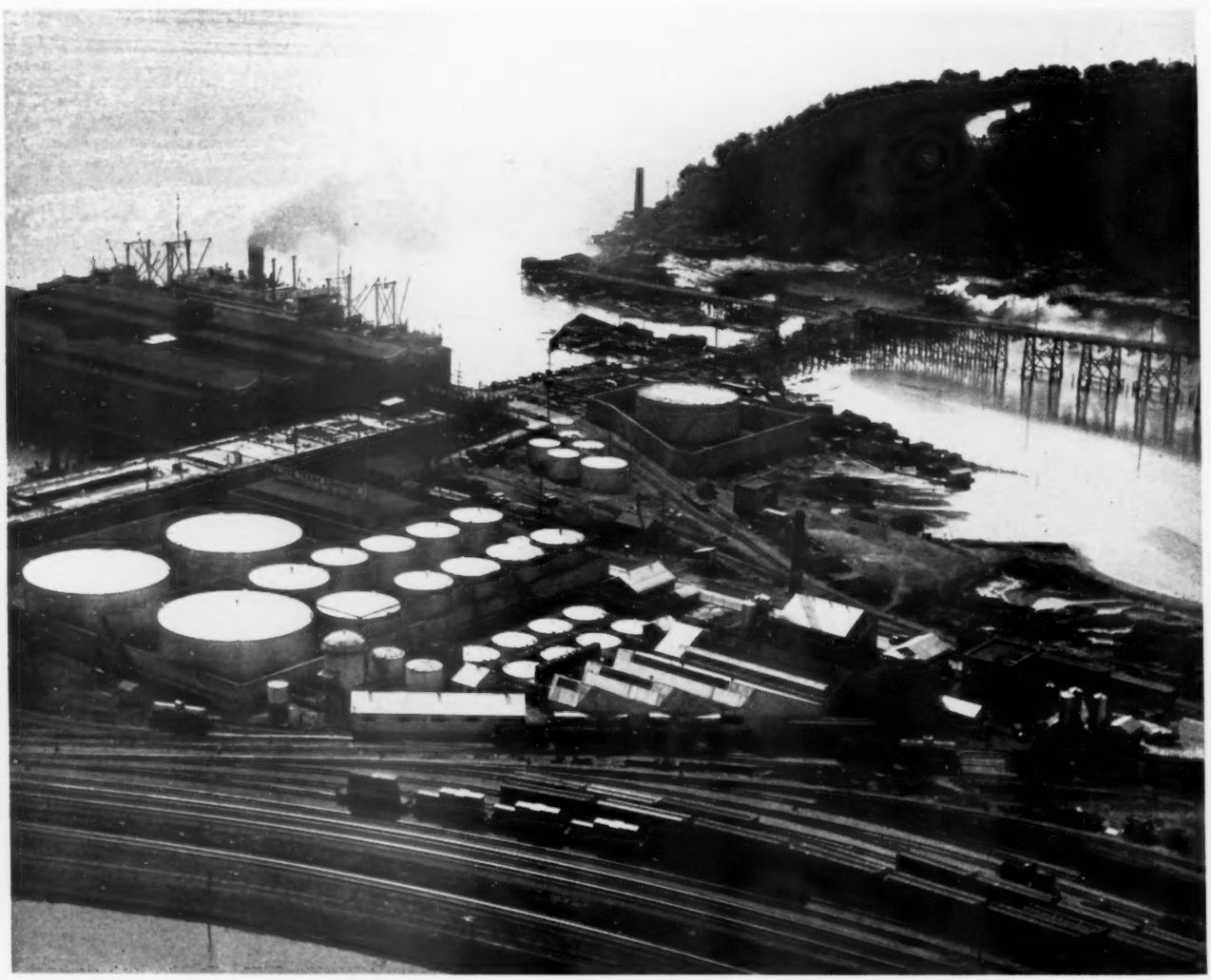
Work on the 30-foot channel up to Wilmington was completed in 1932. From Wilmington to Navassa, there is to be a 22-foot channel, and from Navassa to Fayetteville, one of eight feet. Only the Wilmington-Navassa four-mile stretch is incomplete and some work remains to be done on three locks and dams on the river at King's Bluff, Brown's Landing and Tolar's Landing.

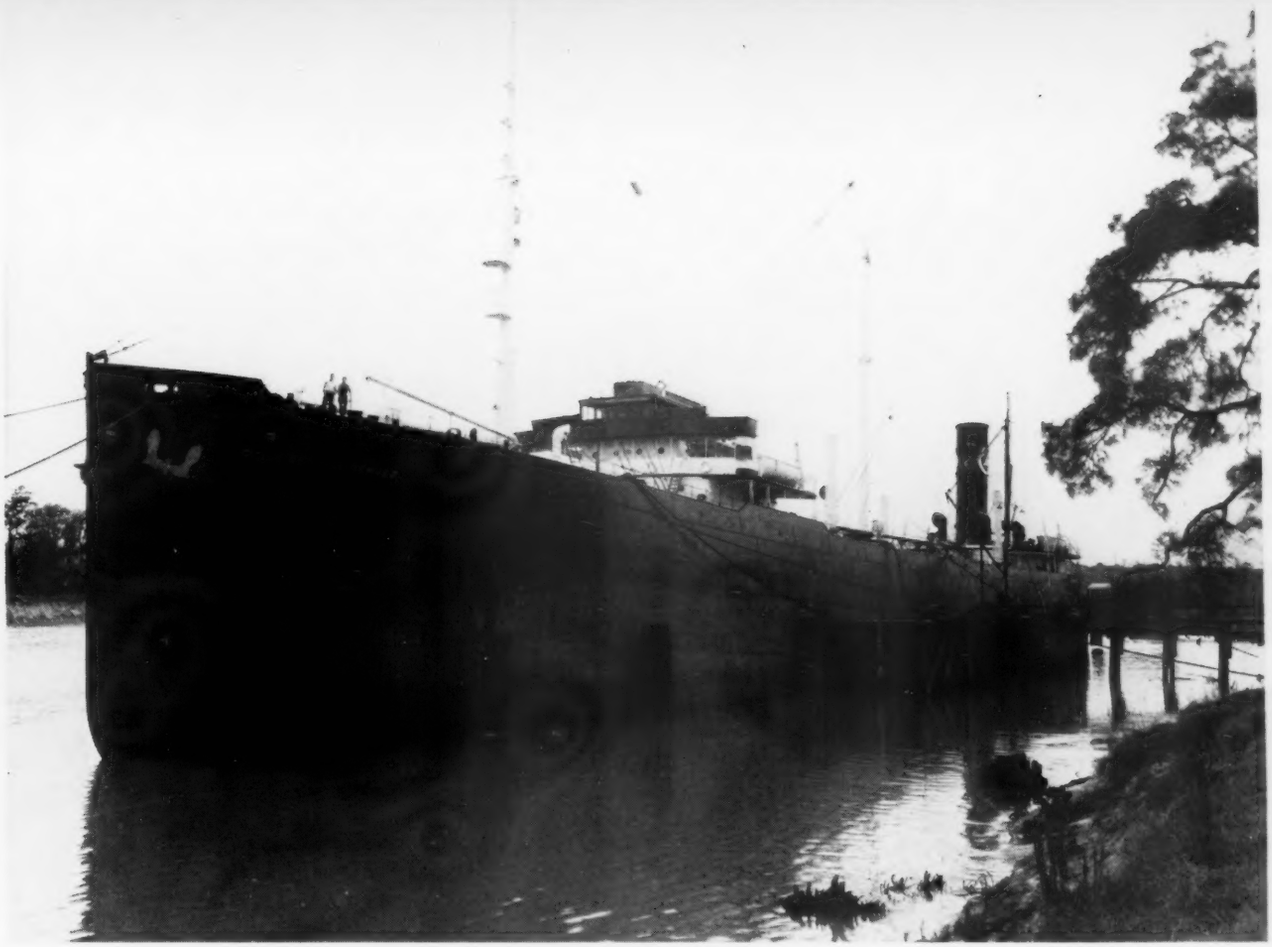
The War Department engineers are working to provide the James river of Virginia with a channel 25 feet deep and 200 to 300 feet wide from its mouth at Hampton Roads, Va., to the Richmond lock gates, a distance of 90 miles. The project is about 73 per cent completed, with dredging of the channel between Hopewell and Richmond now underway.

A proposed new inland waterway connecting Columbia and Charleston, S. C., via the Congaree, Santee and Cooper rivers and then running, via the intra-coastal waterway, to Georgetown, has been held up by a court battle.

The Santee-Cooper power and navigation project is estimated

The Texas Co.'s marine terminal on Puget Sound, at Seattle, Wash., from which a wide territory in the northwest is served





Even as volatile an oil product as natural gasoline is handled by tanker shipment. Here a Cities Service tanker is loading a cargo of natural gasoline supplied by the Warren Petroleum Co. on the Houston ship channel

to cost $37,500,000 and in addition to a tremendous power project would provide a 145-mile trade route, of which 96 miles would have a 10-foot channel and the balance would have seven feet.

The War Department engineers have investigated the project; the PWA has authorized $6,000,000, almost entirely in loans, for it, and the WPA was ready to add some of its funds, but the Duke power company brought suit again and it went into court.

Only about $100,000 of the PWA money has actually gone to the state authority which is handling the project and PWA reports that it has not obligated itself and cannot, in its practically penniless state, loan the additional millions necessary for the project. Some test borings and surveys have been made but actual construction has not started.

The Chesapeake and Delaware Canal in Maryland and Delaware is being turned into a sea-level channel for vessels drawing 25 feet. It extends from Reedy Point on the Delaware River about 41 miles below Philadelphia for 19 miles to the junction of Black Creek and Elk river approximately four miles west of Chesapeake City, Md., and has a 1.8 mile branch channel from Delaware City, Del., to a junction with the main canal from Reedy Point.

Turning to the southwest and the great oil fields of Texas, there is the proposed nine-foot intracoastal channel from Corpus Christi, Texas, to New Orleans.

From New Orleans to the Sabine River, which forms the border between Louisiana and Texas, the project has been completed, while dredging to the nine-foot depth from the Sabine river on to Corpus Christi is about 37 per cent completed.

On the New Orleans-Sabine River section, construction of a highway from Intracoastal City to Vermilion Lock is now in progress; while on the Sabine River-Corpus Christi section, general maintenance work, including dredging, placing of stones, and building of a warehouse, is underway.

In New England, the Thames River of Connecticut, which runs 15 miles from Norwich to Long Island Sound at New London, has a 25-foot channel and a 200-250 width throughout except for a small area between Allyns Point and Norwich.

The Cape Cod Canal is eventually to have a depth of 32 feet, a width of 540 feet in the land cut, 500 feet in a straight channel in Buzzards Bay to Wing's Neck, and beyond Wing's Neck, a harbor of refuge for small vessels, mooring basins and two fixed high bridges. It was about 20 per cent completed at the end of the last fiscal year. Since then, an office building and garage have been completed, large quantities of material have been dredged from the canal and approaches; the superstructure of the railroad bridge and approaches to the Bourne bridge have been completed; the relocation of the railway on the south side of the canal between Bourne and Sagamore is about 86 per cent com-

Movement of Crude Oil and Its Products by Water for Domestic Consumption—1933-1934

From Reports of the U. S. Engineers Office, Washington

(*Figures in Thousands of Barrels*)

	Crude Oil		Petroleum Products											
			Fuel, Gas Oil		Gasoline		Kerosine		Lubricating Oil		Unclassified		Totals	
	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934
I Ports:—														
(a) Atlantic Coast	143,446	154,239	131,139	164,318	138,038	171,455	19,207	22,977	10,757	10,774	93,359	92,355	535,946	615,228
(b) Gulf Coast	170,662	237,862	76,557	88,306	89,156	108,983	8,752	16,896	3,126	3,416	15,740	9,509	354,993	464,972
(c) Pacific Coast	67,506	53,154	76,977	102,928	67,401	64,053	3,684	3,265	1,835	1,029	5,217	7,913	222,620	232,342
(d) Great Lakes	20,200	5,655	4,639	5,373	23,392	29,859	802	1,238	239	122	802	691	50,065	42,948
II Rivers:—														
(a) Atlantic Coast	.....	500	7,523	7,089	20,791	23,344	3,110	2,895	135	198	21,122	21,992	52,681	56,018
(b) Gulf Coast	34,814	10,688	2,117	645	2,064	729	139	59	53	27	69	39	39,256	12,187
(c) Pacific Coast	4	.....	1,698	3,551	2,274	2,454	47	20	46	34	3	83	4,072	6,142
(d) Mississippi River and tributaries	15,737	20,381	21,497	15,039	11,238	29,529	1,175	736	269	250	58	6,602	49,974	72,528
III Canals and Connecting Channels:—														
(a) Federal	76,549	115,341	14,774	17,187	29,350	29,507	4,554	4,819	874	501	81	4,495	126,182	171,841
(b) State and Private	10	.....	549	400	1,651	1,879	42	17	12	13	9,557	1	11,821	2,310
Unadjusted Totals*	528,927	597,820	337,471	404,829	376,354	461,819	41,402	52,013	17,337	16,362	146,008	213,679	1,447,499	1,746,522
Adjusted Totals**	243,181	270,400	172,943	217,619	183,649	224,959	22,074	27,764	9,661	9,039	94,241	87,181	725,749	836,962

*Includes receipts and shipments, coastwise as well as local, internal and intraport traffic.
**Duplications are eliminated in the adjusted totals.

plete; work is in progress in dismantling old highway and railroad bridges and excavation and revetment work is actively in progress.

The New York State Barge Canal, which extends from Waterford, N. Y., on the Hudson, 163 miles to Three Rivers Point, and then 24 miles north to Oswego on Lake Ontario, connecting the harbor of New York with the mid-west through the Lakes, is having its channel deepened from 12 to 14 feet between locks and is to have a vertical clearance of 20 feet on bridges spanning the waterway.

On the Great Lakes, the project to provide a 25-foot draft for downbound traffic and 20-foot for upbound has been almost completed in all the Lakes' connecting channels including St. Mary's River, the channel between Mackinac Island and Round Island, the Poe Reef Shoals, the St. Clair River, and so on. The War Department engineers have enough money to go ahead with these projects this year and next and need about $700,000 to $800,000 to complete them, they report. From Chicago on the Lakes, traffic can reach the Mississippi above St. Louis through the Illinois river or at Rock Island via the Illinois Waterway.

In this same area, there is the Sturgeon Bay and Lake Michigan Ship Canal, Wis., which cuts off travel around a jutting peninsula of Wisconsin in Lake Michigan. It is to be dredged to increase the width and depth of channels and is about 87 per cent completed.

There is also the proposed St. Lawrence Seaway project providing a 27-foot channel from Montreal to Lake Ontario, a depth which would accommodate about 90 per cent of the general freight vessels of the world, including all but the largest tankers. A treaty for this project between the U. S. and Canada has been signed but has not been ratified by the U. S. Senate.

Another waterway proposal of great interest to the oil industry is that of creating a Lake Erie-Ohio River canal, which would open up a cheap transportation route to the Lakes for the Pennsylvania oil fields. A report on four possible routes for such a canal is now before the Rivers and Harbors Board of the War Department.

On the West Coast, work on the construction of a gigantic improvement project is underway in Los Angeles and Long Beach harbors. Breakwaters are being constructed, the outer and inner harbors are being widened and deepened, and turning basins are being enlarged. The project was 79 per cent completed at the end of the last fiscal year and since that time some additional work has been done on one of the breakwaters.

The Bonneville project, in Oregon, will make the Columbia River navigable as far as the Snake River and recent changes in plans will allow vessels as well as barges to travel on it. It is expected to be completed next year, the Army engineers say.

A recommendation has been made to Congress for construction of a ship channel from Vancouver, Wash., to Bonneville, which is 40 miles above Portland, Ore.

All over the country, barges and tankers are moving up rivers, terminals are springing up, and the waterways of the nation are having a second day in the sun.

ADVERTISING PAGE REMOVED

"Ace in the Hole," Independent Calls His Water Terminal

WATER terminals for the independent oil marketer have no stronger advocate than S. D. De Shazor, founder of the Delta Oil Co., of Petersburg, Va. His company has been receiving its supplies through a river terminal for ten years.

Mr. De Shazor believes that the experience of his company a few weeks ago demonstrates that the oil jobber with access to a water terminal has an ace in the hole when dickering for a source of supply.

About ten years ago, he said, in telling how he was converted to water transportation, he reached the conclusion that it was unwise for an independent oil marketer to be wholly dependent on railroad transportation.

An oil jobber's business could be wiped out by a change in freight rates, he pointed out.

A glance at a map drove home to Mr. De Shazor the fact that a water terminal at City Point (Hopewell) at the junction of the Appomattox and James rivers would be just about in the middle of Delta's marketing territory, which comprises 14 counties in what is known as the "South Side" of Virginia below Richmond.

With a channel depth of 25 feet or more from City Point to the sea, it is possible to bring ocean tankers to dock a few feet from the shoreline. It is one of the farthest points that tankers of such size can penetrate.

As a beginning, Mr. De Shazor built a terminal with 140,000 gallons storage. No plans were drawn—he merely went on the property and pointed out where the tanks were to go.

Today, there is tankage for 6,500,000 gallons; but so compactly are the tanks located that the terminal seems only about half that capacity. Tankers from the Texas Gulf dock there with ease and discharge their cargoes through pipelines running only a couple of hundred feet to the most distant tank.

After a while Mr. De Shazor saw that his company's gallonage was insufficient to bring terminaling costs down to a level which would amortize the investment within a reasonable time.

So, he leased the terminal to the Seaboard-Midland Petroleum Co., from whom he was buying gasoline at the time. Delta's supplies continued to come in by water. Seaboard also shipped by rail out of the City Point plant to distant points in the south.

This setup continued for some time. Then, Mr. De Shazor said, he got the idea that, if the plant's capacity were still further increased and more gallonage put through, it would be more profitable.

"So, I went to Pittsburgh and saw O. D. Robinson, of Republic Oil Co., from whom we had been buying on the spot market for years," he added. "I said—'O. D., how would you like to come in with us on City Point terminal?'

"He liked the idea, so we incorporated City Point Terminal and bought up what remained of Seaboard's lease," Mr. De Shazor continued. "Republic subscribed to 50 per cent of the stock and we kept the other half. It is absolutely a 50-50 proposition." He emphasized that the terminal company and Delta Oil Co. are entirely separate.

"Delta Oil Co., founded in 1918, when we had only a second-hand Ford tank truck is and always has been an independent oil company," Mr. De Shazor said. "So long as I live, it will remain independent.

"Republic doesn't own or control a single share of stock in either the Delta company or the South Side Transportation Co. (our trucking subsidiary)," he added.

About seven years ago, Delta began to distribute the products of a major oil company which was then just entering the south. For a year, not only Delta's supplies but the bulk of this major company's products going into the Carolinas came through City Point Terminal.

Thereafter the major company made other terminal arrangements at Richmond, but Delta's supplies continued to come through City Point. Republic has shipped as far south as Florida out of this plant. Today, tank trucks are hauling gasoline to points as far distant as 300 miles from the Virginia terminal.

The terminal company followed a policy of not paying dividends until the improvement program for the terminal was completed. More and more tanks were erected as the terminal company's earnings were plowed back into the business. All improvements were paid for out of earnings.

Today, with a capacity of 6,500,000 gallons, Mr. De Shazor proudly states, not a dollar is owed.

In August, 1935, amortization of the terminal company's indebtedness was completed and the last dollar paid off. Since that time, the terminal company has been catching up on back dividends.

All the while, Delta Oil Co.

was prospering. Operating separately from the terminal company, the oil jobbing company employs nearly 100 persons. Its 3,000,000 gallon business is concentrated in 14 counties where Mr. De Shazor has lived practically all of his life. Delta supplies 96 dealer outlets, besides a number of company-owned stations. It also has three sub-jobbers.

Mr. De Shazor says he was not worried when the major oil company, which had been supplying Delta for seven years, gave 75 days' notice that its contract would be changed. In fact, he expected it; and, from similar experiences related by other jobbers, he knew about what terms the company would offer in a renewal contract, he said.

Mr. De Shazor realized that, with water terminal facilities available, Delta could bring in supplies by tanker from the Gulf and market under its own brand.

About this time, however, Delta learned that a satisfactory contract could be obtained from Republic. So, the Petersburg company signed up to distribute Republic branded products.

"That's how having access to water transportation saved our life," Mr. De Shazor said.

"When the renewal contract was offered, we found it unsatisfactory and turned it down, signing up with Republic," he added. "A number of jobbers, however, have been forced to renew contracts on less satisfactory terms than previously. Without a water terminal as an ace in the hole, a jobber is at the mercy of the major oil companies.

"Even if he doesn't go over to marketing under his own brand, there is always the possibility that he can—and that gives the jobber a weapon to fight with," he said.

Mr. De Shazor is firmly convinced that it is possible for groups of independent oil jobbers to join in co-operative water terminals and bring in their supplies from the Gulf and market under their own independent brand name throughout the southeastern states.

A small coastwise tanker could be purchased which would be divided up into compartments, he pointed out and, returning from the Gulf, portions of the cargo could be dropped off at various water terminals.

The movement among southeastern independent jobbers to join in co-operative water terminals and bring in supplies to market under an independent brand began last fall, when the jobbers were resentful at what they regarded as a concerted effort by the major oil companies to reduce their margins.

The movement is now dormant, but not dead, according to jobbers interested. Some progress has been made, although the fever-heat of enthusiasm has died down somewhat.

Individual jobbers have purchased sites for terminals at Charleston, S. C., and Wilmington, N. C. Storage for independents was promised at Savannah, Ga. The plan to lease tankage at Norfolk, Va., however, has not progressed very far.

This new type 8-wheel tank truck recently was built for the Anglo-Iranian Oil Co. Ltd., for bulk transport hauling from its refinery at Kermanshah to Teheran, Iran. All eight wheels of the truck have individual suspension which is of great advantage on rough Iranian roads. Drive is on all four of the front wheels. Engine is a V-8 developing about 140 B. H. P. at 2800 R. P. M. The chassis is fitted with a 3500-gallon tank (4200 U. S. gallons). When loaded fully the vehicle has a weight of 23.5 tons of which 50 per cent is useful load. Photo courtesy The Commercial Motor (England) by permission of Anglo-Iranian Oil Co. Ltd.

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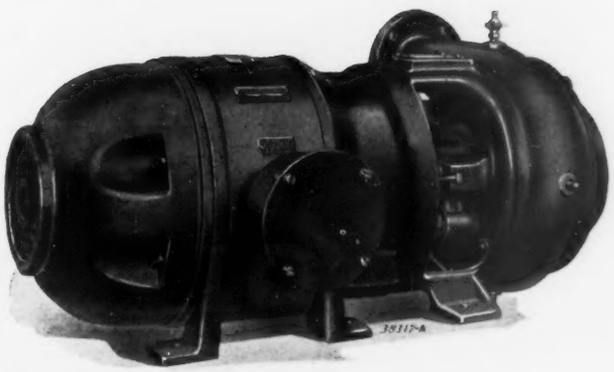

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The Sun Oil Co. river terminal at Cincinnati from the river bank. An unusual feature of the plant is the underground lines to the dock which go under both the street and the tracks. One horizontal tank in the deep trench between the two floating roof tanks is entirely invisible. Property to the left of the office building has been purchased for expansion

Oil Traffic on Ohio River Growing, More Water Terminals Building

By **M. G. VAN VOORHIS**
N. P. N. Staff Writer

THE year 1936 is proving to be an oil-barge year with the manufacturers of this type of waterway equipment serving the Ohio river and its tributaries. At least 20 new barges are being built or have been put in service on the Ohio this year.

Oil companies are building new terminals and enlarging present facilities in the Ohio river valley. Both oil companies and towing companies are enlarging their barge fleets.

River terminals and bulk plants on the Ohio river and its tributaries received 50,000,000 gallons more gasoline in 1935 than in 1934, a gain of nearly 16 per cent over the previous year, government statistics show.* Half of this increase in volume was supplied from the Pittsburgh district and half came up the Ohio from the Mississippi. But that is not all of the increase from the Mississippi. That river's increase was sufficient to make up for an 11 per cent decrease in shipments from the Huntington, W. Va., district.

The largest per cent increase on any of the tributary streams is noted on the Cumberland river, where 1935 volume was nearly four times that in 1934. The most interesting fact concerning the Cumberland river is that the volume of its gasoline shipments has surpassed all other Ohio tributaries except the Allegheny and Monongahela rivers. And the first gasoline was barged on the Cumberland in 1933. There are now at least nine bulk terminals on this river as far up as Carthage, Tenn., where Gulf Refining recently completed a new plant. Volume on the Kentucky river doubled in 1935.

The accompanying chart indicates only the gasoline movements, since they constitute the major portion of the traffic. There is, however, a considerable volume of river movement of other oils in certain sections. A total of 1,750,000 barrels of crude oil was originated on the Ohio from the Producers pipeline terminals above Owensboro, Ky., which is about 150 miles below Louisville. About 115,000 barrels entered the Cincinnati district. The remainder, apparently, was refined at Louisville. In 1934 the total was close to 1,500,000 barrels, with 265,000 barrels entering the Cincinnati district. The Louisville district also received 200,000 barrels of kerosine from the Mississippi.

Fuel oil is important in the Pittsburgh area. The Pittsburgh district originated shipments of 600,000 barrels and received from outside sources over 225,-

*Throughout this discussion the following multiplying factors have been used to reduce government tonnage figures to barrels: Gasoline, 7.7; kerosine, 7; crude oil, gas oil and fuel oil, 6.7; and lubricating oils, 6.3.

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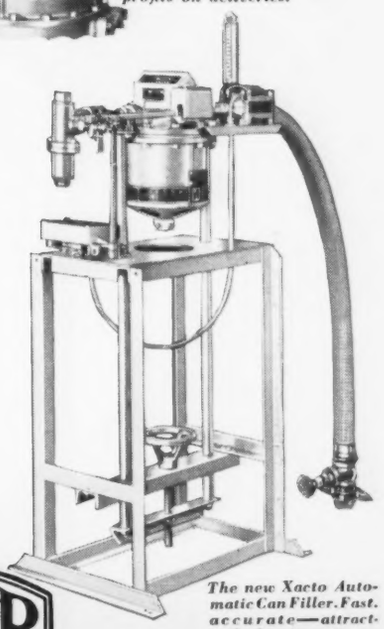

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Water Bulk Plants and Petroleum Terminals on the Ohio River and Its Tributaries

OHIO RIVER—Pittsburgh District

Location	Owner or Operator
McKees Rocks, Pa.	Socony Vacuum Oil Co.
*Neville Island	Gulf Refining Co.
Coraopolis	Republic Oil Co.
*Vanport	Sun Oil Co.
*Midland	Standard Oil Co. (Pa.)
Steubenville	Standard of Ohio.
Warwood, W. Va.	American Oil Co.
Martins Ferry, O.	Sterling Oil Co.
Wheeling	Gulf Refining Co.
Wheeling	Sun Oil Co.
Wheeling	Standard of New Jersey.
Bellaire	DuBois Oil Co.
Moundsville	Standard of N. J.

ALLEGHENY RIVER—Pittsburgh District

Pittsburgh	Standard of Pa.
Pittsburgh	Wiloil Co., Inc.
*Pittsburgh	Atlantic Refining, Keystone pipeline.
Kittanning	Gulf Refining Co.

MONONGAHELA RIVER—Pittsburgh District

*Hayes	American Oil Co., Keystone pipeline.
McKeesport	Gulf Refining Co.
Glassport	Standard of Pa.
Monongahela City	Atlantic Refining Co.
Donora	Gulf Refining Co.
Belle Vernon	Atlantic Refining Co.
Belle Vernon	Standard of Pa.
Brownsville	Atlantic Refining Co.
W. Brownsville	Sun Oil Co.
W. Brownsville	Gulf Refining Co.
Morgantown	Standard of N. J.
Morgantown	American Oil Co.
Morgantown	Gulf Oil Co.
Fairmont	Standard of N. J.
Fairmont	Gulf Oil Co.

YOUGHIOGHENY RIVER—Pittsburgh District

McKeesport	Atlantic Refining Co.
McKeesport	Sun Oil Co.

OHIO RIVER—Huntington District

Clarington, O.	Standard Oil Co.
New Martinsville	Gulf Oil Co.
Fly, Ohio	Pure Oil Co.
New Matamoras, O.	Standard Oil Co.
St. Marys, W. Va.	Sterling Oil Co.
Williamstown, W. Va.	Bridge Service Co.
Marietta	National Refining Co.
Marietta	Standard Oil Co.
Marietta	National Refining Co.
Marietta	Pure Oil Co.
Marietta	Sun Oil Co.
Belpre, O.	Standard Oil Co.
Parkersburg	Gulf Oil Co.
Long Bottom, O.	Standard Oil Co.
Portland, O.	Southern Oil Co.
Antiquity, O.	Standard Oil Co.

MUSKINGUM RIVER

Marietta	Sinclair Refining.
Marietta	W. H. Clark.
Marietta	Standard Oil Co.
Lowell	Wm. Detlor.
Beverly	L. M. Webster.
Beverly	Beverly Ice Co.
Beverly	Drive-In Filling Station.
Malta	Standard Oil Co.
McConnelsville	Standard Oil Co.
McConnelsville	Twin City Garage.
Zanesville	Quaker State Oil Co.

LITTLE KANAWHA RIVER

Parkersburg, W. Va.—Standard of N. J.

KANAWHA RIVER—Huntington District

S. Charleston, W. Va.	Carbide & Carbon Chemicals Corp.
Charleston, W. Va.	Gulf Refining Co.
Charleston, W. Va.	Standard of N. J.
Charleston, W. Va.	American Oil Co.
South Malden, W. Va.	Owens Bottle Co.
Dickinson, W. Va.	Pure Oil Co.
Pratt, W. Va.	Standard of N. J.

ELK RIVER

Charleston, W. Va.—Pure Oil Co.

BIG SANDY RIVER

Kenova, W. Va.	Tri-State Refining Co.
Kenova, W. Va.	Sun Oil Co.
Leach, Ky.	Ashland Refining Co.

OHIO RIVER—Cincinnati District

Catlettsburg, Ky.	Ashland Rfg. Co.
Ashland, Ky.	Standard of Ky.
Ashland, Ky.	Ashland Rfg. Co.
Ironton, O.	Ashland Rfg. Co.
Manchester, O.	Standard of Ohio.
Manchester, O.	Pure Oil Co.
Maysville, Ky.	Ashland Rfg. Co.
Ripley, O.	Pure Oil Co.
Ripley, O.	Ripley Oil Co.
Cincinnati	Keenan Oil & Fuel Co.
Cincinnati	Cumberland Term'l Sales, Inc.
Newport, Ky.	Gulf Oil Co.
The Moores	Coney Corp.
Cincinnati	Sun Oil Co.
Cincinnati	Pure Oil Co., Shell.
Cincinnati	Tower Oil Co., Republic Oil.
Cincinnati	Tresler Oil Co., Louisville Refining Co.
Cincinnati	Ohio River Rfg. & Terminal Co.; Eureka Oil Co.; Hall-Rattermann; Merchants Oil Co.
*North Bend, O.	Gulf Refining Co.

KENTUCKY RIVER

Camp Nelson, Ky.—Gulf Refining Co.

OHIO RIVER—Louisville District

*Louisville	Stoll Oil Rfg. Co.
*Louisville	Louisville Rfg. Co.
Louisville	Gulf Refining Co.
Louisville	Aetna Oil Co.
Louisville	Standard of Ky.
*Above Owensboro	Producers Pipe Line Co.
Above Owensboro	Standard of Ky.
Evansville	H. F. Koch Stations Co.
Paducah	Three Rivers Oil Co.
Paducah	Gulf Oil Co.
Paducah	Standard of Ky.

GREEN RIVER

Bowling Green, Ky.—Gulf Refining Co.

CUMBERLAND RIVER—Nashville District

Dover, Tenn.	Apex Oil Corp.
Clarksville, Tenn.	Standard Oil Co.
Clarksville, Tenn.	Gulf Refining Co.
Clarksville, Tenn.	Apex Oil Corp.
Nashville	Apex Oil Corp.
Nashville	Pure Oil Co.
Nashville	Standard Oil Co.
Nashville	Gulf Refining Co.
Carthage, Tenn.	Gulf Refining Co.

*Shipping points only.
Rivers and terminals are arranged in order of distance from Pittsburgh.

000 barrels. All but 30,000 barrels of the former was consigned within the district. Of the latter, 170,000 barrels came from up the Little Kanawha river and 22,000 barrels more came from other parts of the Huntington district. The rest came from the Cincinnati district.

A number of new water terminal plants have been put into operation in the past several months along the Ohio river system. Among these is one built by the Moores-Coney Corp., a firm already established in the business of handling building materials and coal, not more than two miles from Cincinnati's business section. The company is said to have gone to extreme lengths to meet city safety regulations and to safeguard against fire hazards in this closely built area.

Heavily reinforced concrete walls surround the present 210,000-gallon tank and the two 10,000-gallon truck loading tanks, independently of each other. Plans are in the formative stage for the installation of 400,000 gallons more storage, for which provision has already been made in the way of piping. The gasoline now handled is transported from refineries in East Texas by the Ohio River Co. and is being sold at a few company stations and to independent dealers, it is said. No brand name has yet been chosen.

The plant is equipped with an ample foam system for fire protection. One 8-inch line connects the present temporary dock with the single storage tank. A rotary pumping unit is used to fill loading tanks from storage and the loading tanks are equipped with two modern truck loading meters of the recording type.

The Sun Oil Co. plant at Cincinnati, only recently put into satisfactory running order, is to be enlarged sufficiently to double its throughput if plans to truck gasoline to Dayton are completed. Adjoining property has already been purchased on which to build the required tankage. At present the plant is being served by four company-owned barges and two new barges of the Campbell Transportation Co. Six 3000-gallon tractor-trailer trucks are used for present deliveries, in addi-

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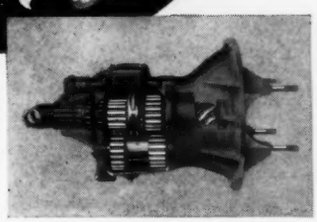

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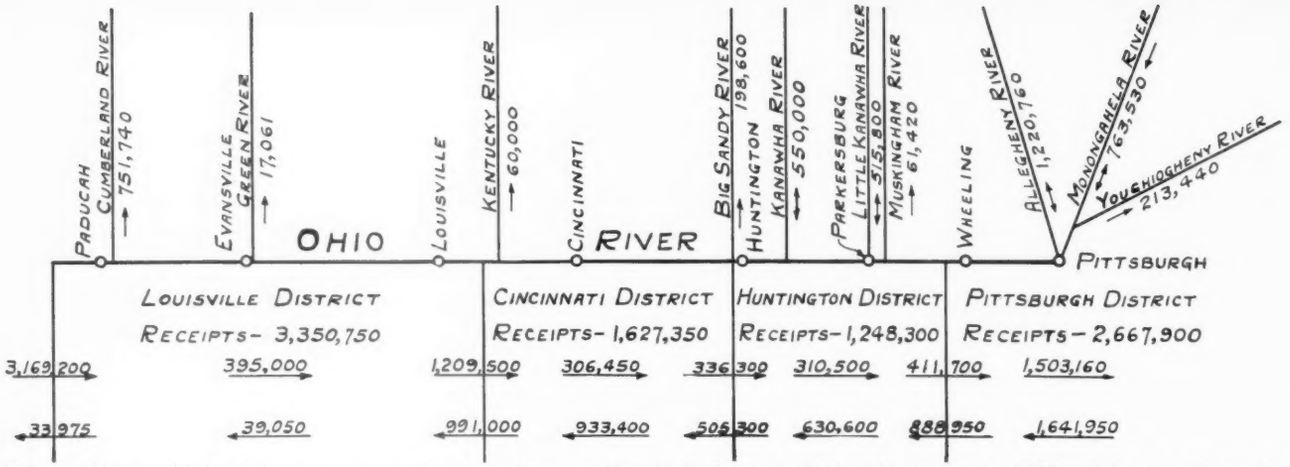

Volume (in barrels) of barge movement of gasoline on the Ohio River and its tributaries in 1935. Volumes originating in each district and volume passing from each district to adjoining districts are indicated by figures over the arrows. Distances between principal cities, tributary rivers, and district limits are scaled to river mileage along the Ohio. Figures in tributary streams indicate total volume moving in both directions

tion to some tank car shipments.

During high water this spring the plant was unable to unload either barges or tank cars from tracks on the river bank and was forced to open an old plant in another part of the city to maintain deliveries but this situation has since been remedied.

The Ohio River Refining and Terminal Co., a joint enterprise of Hall-Ratterman, Merchants Oil Co., and Eureka Oil Co., is going full blast now and keeping 12 trucks busy. No new tanks are to be added this year, it is said. The company is handling gasoline barged from the Shell refinery in St. Louis.

Other river bulk plants which were not included in the list published last October* include three American Oil Co. plants, one at Warwood, near Wheeling, W. Va.; one at Morgantown; and the other at Hayes. The Hayes plant is the principal one of the three. According to official statements the company has given up barging of gasoline to this plant, and is being supplied from the Keystone (Atlantic Refining Co.) pipeline, which has a terminal at the plant. From here it is sent by barge to other river terminals. An earlier report stated that the Campbell Transportation Co. had added St. Louis and Wood River to its regular schedule and that this movement would involve shipment from the Standard of Indiana refinery to the new American Oil Co. terminal at Hayes.

Gulf Refining Co. is now supplying bulk plants on several rivers tributary to the Ohio. In addition to the new terminal at Carthage, is one at Camp Nelson, 135 miles up the Kentucky River and one at Bowling Green, 177.5 miles up the Green and Barren rivers. There is a persistent rumor that Gulf is building at Sheffield, Ala. on the Tennessee river. The company neither affirms nor denies this.

Socony Vacuum has a new terminal and warehouse at McKees Rocks which was severely initiated by the record high water at Pittsburgh. Although its storage capacity is average this plant compares in size otherwise with some of the largest on the river. The nearby Metropolitan Oil Co., distributors of Fleetwing gasoline, is planning to build new tankage this year in that vicinity in order to receive barge shipments.

Standard of New Jersey has asked permission to maintain two pontoons and lay three unloading lines at Boomer, W. Va.,

*See N. P. N., Oct. 16, 1935, page 46.

Table 1

Barge Movement of Gasoline on the Ohio River and Tributaries in 1935 and 1934

(Figures in Barrels)

			Mississippi	Louisville	Cincinnati	Huntington	Pittsburgh	Total
Movement between Ohio River Districts	UP	1935	→	3,169,180 →	1,209,500 →	336,300 →	411,700 →	
		1934	→	2,528,580 →	860,800 →	342,000 →	280,000 →	
		Gain		25.3%	40.5%	— 1.7%	47.0%	
	DOWN	1935	←	33,975 ←	991,000 ←	505,300 ←	888,950 ←	
		1934	←	0 ←	999,600 ←	312,900 ←	495,800 ←	
		Gain			— 0.9%	61.5%	79.3%	

		Louisville	Cincinnati	Huntington	Pittsburgh	Total
District Shipments	1935	434,050	1,239,850	941,100	3,145,000	5,760,300
	1934	415,660	1,223,550	1,056,000	2,453,000	5,148,210
	Gain	4.4%	1.3%	—10.9%	28.2%	11.9%
District Receipts	1935	3,350,750	1,627,350	1,248,300	2,667,900	8,894,300
	1934	3,083,000	1,055,600	1,300,200	2,237,400	7,676,200
	Gain	8.7%	54.2%	— 4.0%	19.2%	15.9%

Figures in the above table are computed from government statistics. Tonnage figures are changed to barrels by multiplying by the following factors:—Gasoline, 7.7; kerosine, 7; crude oil, gas oil, and fuel oil, 6.7; and lubricating oil, 6.3.

on the Great Kanawha river for unloading gasoline from barges, and Sterling Oil Co. has been delivering gasoline to Martins Ferry, Ohio.

As previously stated, an unusual activity has taken place in the building of oil barges this year for use in moving oil products on this inland waterway. Not only are more barges being built but they are larger than the average older oil barge used on the upper Ohio. The new barges, many of them, are said to have capacities over 7000 barrels, 7600, 8600, and even up to 10,000 or 11,000 barrels. The list of contracts given in Table 1 is not complete. One builder alone is said to have made bids on over 50 oil barges in the past six months.

It takes a towboat for every six or eight barges in operation. Campbell Transportation Co. bought two this spring at a cost of $250,000 each. Their six new barges averaged about $31,000 each, it is said. Standard of Louisiana has an inquiry out for a stern wheel towboat and Ashland Refining Co. recently took delivery of a new one, the Senator Coombs, which is expected to handle a maximum load of a million gallons for delivery along the Ohio between Wheeling and Cincinnati. The boat was built by the St. Louis Shipbuilding Co. and has diesel powered screw propellers.

At the present time there is agitation for a new Mississippi Valley waterway, as it is termed, the Tennessee River Ship Canal connecting with the Tombigbee river. Such a project is being considered and a channel survey has been authorized. On the opposition, of course, are the railroads who are even now fighting to recover oil traffic from Alabama barges. The railroads have proposed a 5-cent reduction in the present rate of 23.5 cents per 100 pounds on gasoline from New Orleans to Birmingham and 20 cents from Mobile. This would bring rail costs below barge costs, barging interests claim. This cost of barging gasoline from Mobile to Birmingham is said to be six cents per 100 pounds.

The growth of river transportation appears to have resulted in readjustments of "swapping" arrangements, whereby carrying of gasoline in both directions is minimized. One alternative coming up in the Alabama testimony before the Interstate Commerce Commission was a "swapping" arrangement which would involve exchanges at Cincinnati, Louisville and other points.

With oil companies in the barging business interest shifts from transportation charges to costs of the business. Charges for gasoline delivery are variable and highly competitive, it was brought out in the Oct. 16, 1935, issue of NATIONAL PETROLEUM NEWS. From the standpoint of operation of a barge train, Major Rufus W. Putnam, former U. S. District Engineer in Chicago, has analyzed the cost factors of inland waterway transport including both towboat and self-propelled barge operation in a paper for the American Society of Civil Engineers. This paper will be published in the July issue of *Civil Engineering*, Mr. Putnam states.

It may be safely concluded that, with gasoline shipments overtaxing barge capacities in 1935 and with at least 20 new tank barges in operation and several more river terminals in 1936, oil shipments on the Ohio River will undoubtedly gain again this year.

Tankers and Barges Registered in the U. S.

Data is for the year ended June 30, 1935, and includes tankers carrying all liquid products.

	Tankers No.	Net Tonnage	Approx. Capacity Barrels	Crew No.	Total H.P.	Unrigged Barges No.
Atlantic Refining Co.	22	74,518	1,220,000	578	47,720	1
Associated Oil Co. (See Tidewater)						
Continental Steamship Co.	5	21,090	372,400	178	12,900	1
Cities Service Trans. Co.	13	61,319	1,130,000	455	38,600	6
Gulf Refining Co.	39	115,294	2,215,000	1,105	80,423	17
Lake Tankers Corp. (Shell)	8	5,543	100,000	115	5,050	4
Motor Tankship Corp. (See Sun)						
Malston Co.	7	30,112	550,000	233	18,800	
Pan American Foreign Corp.	24	102,448	1,960,000	942	69,950	1
Pennsylvania Shipping Co.	9	33,621	600,000	318	23,300	
Petroleum Navigation Co.	4	12,123	23,000	140	8,400	6
Richfield Oil Co.	6	20,730	610,000	184	14,650	1
Southern Pacific Co.	3		236,500	100	7,600	
Sabine Transportation Co.	8	17,100	212,300	232	13,700	7
Pure Oil Co.	3	12,955	230,550	113	8,400	
Standard of California	24	78,977	1,427,000	735	54,702	
Standard of Indiana	4	11,809	208,000	111	8,260	
Standard Shipping Co.	46	237,835	4,600,000	1,720	134,275	14
Sinclair Navigation Co.	10	40,814	712,000	397	30,300	
Socony Vacuum, Stand. Vacuum	63	197,798	3,750,000	1,745	129,882	48
Sun Oil Co.	15	44,118	830,000	376	27,070	5
Motor Tankship Corp.	7	38,281	810,600	269	19,600	
Twe Texas Co.	33	104,310	2,000,000	979	70,245	18
Tidewater Associated Trans.	13	45,794	906,600	397	30,010	2
Associated Oil Co.	14	35,023	590,000	347	23,460	3
Union Oil Co.	14	42,906	800,000	368	29,230	5
All other	135	156,024	3,000,000	1,907	122,758	110
Totals	529	1,550,000	29,094,000	14,044	1,029,285	250

The above table is taken from the Bureau of Navigation annual list of "Merchant Vessels of the U. S."

Great Lakes Oil Shipments Increased a Fifth in 1935

IF THE increase alone in Great Lakes shipments of refined petroleum products in 1935—over 3,000,000 barrels* as compared with 1934—were put into railway tankcars it would require between 15,000 and 17,000 cars to carry the oil to its destinations.

Most of these increased shipments originated on the East Chicago waterways and the 15,000,000 barrels going out from there in 1935 more than justify its being called the "Hub" of Great Lakes shipments of petroleum products. The increase in shipments from East Chicago in 1935 was nearly equal to the total shipments of its nearest rival, Toledo.

Shipments by water of Michigan crude oil increased 1,200,000 barrels in 1935, rising from 2,800,000 in 1934 to 4,029,000 barrels. The increase was 44 per cent from one year to the next but shipments from the Saginaw River in 1935 were more than double those in 1933. Toledo and Cleveland were the receiving ports for these shipments. The former took a third more in 1935 than in 1934, a total of 3,550,000 barrels, and Cleveland receipts, 650,000 barrels, were six times those of 1934.

Toledo's increase in shipments of refined products in 1935, though dwarfed by East Chicago, was sizeable. The additional 680,000 barrels represented a 34.5 per cent increase. The significant and unexpected fact concerning Toledo was a drop in receipts of refined products from 1,200,000 to 190,000 barrels.

One of the most significant changes in lakewise receipts of oil was the 100 per cent increase at Cleveland, stepping up from 1,200,000 barrels to nearly 2,500,000 barrels of refined products. The recently announced new independent marine terminal with 3,000,000 gallons storage indicates further increases this year. Cleveland was not the only port to have an increase of over a million barrels, an examination of the accompanying table discloses. Detroit also jumped up another million barrels but it did not mean so much there, because Detroit had already 5,500,000 barrels in 1934.

When receipts of petroleum products reach such a figure as 6,500,000 barrels, so far in the lead of other lake ports, it is interesting to speculate on what might be the saturation point. Total gasoline receipts were 4,236,000 barrels at Detroit. Its metropolitan area has a population of at least 2,100,000 and the state had a car registration of a little over four persons per car in 1934. The state consumption per motor vehicle was 609 gallons in 1934, which is low for a metropolitan district. Therefore, assuming 530,000 cars consuming annually 750 gallons each (the average for the state of Massachusetts and Rhode Island was 720 gallons), the consumption might be expected to be in the neighborhood of 400,000,000 gallons or 9,500,000 barrels in metropolitan Detroit. No doubt Detroit is a base for tank car and truck shipment also to points up to 100 miles distant although these movements would be restricted chiefly by Toledo and Bay City. Perhaps 11,000,000 barrels would approach the upper limit of annual consumption in Detroit and the area it serves. On this basis its water receipts in 1935 were only a little over a third of its consumption. The rest would be supplied by tank car, the gasoline pipe line from Toledo, and by truck. The White Star refinery at Trenton, Mich. and Keystone Oil Refining Co. in Detroit are within trucking distance.

One of the developments at Detroit in 1935 was the receipt of gasoline by barge all the way from the eastern seaboard. The Wiloil Co. of Pittsburgh was in back of this movement and for a time used as storage an old

*Throughout this article the following multiplying factors were used to change government statistics, in tons, to barrels: Gasoline, 7.7; kerosine, 7; fuel oil, gas oil, and crude oil, 6.7; and lubricating oil, 6.3.

Tanker Movement of Refined Petroleum Products on the Great Lakes in 1935

Imports and Exports not included

(*Figures in Barrels*)

Port	Receipts 1935	Receipts 1934	Shipments 1935	Shipments 1934
Superior, Wis.	2,751,550	2,350,000*		
Green Bay, Wis.	1,125,520	900,280		
Chicago	644,375	836,570	30,800	80,850
Indiana Harbor	1,093,090	1,220,960	15,084,040	12,718,400
St. Joseph, Mich.	340,040	195,225		
Muskegon, Mich.	1,930,330	1,342,940		23,100
Traverse City	175,300	81,110		
Saginaw River	1,568,450	1,043,620		
Port Huron	Included in Detroit totals			
Detroit	6,573,050	5,513,100	85,240	31,970
Toledo	192,400	1,205,500	2,650,870	1,971,120
Lorain, Ohio	192,000	0		
Cleveland	2,491,360	1,234,170	892,900	864,870
Buffalo	479,450	619,960	407,050	241,440
Tonawanda	84,615			
Sackets Harbor, N. Y.	128,360	133,860		
Totals	19,769,900	16,677,300	19,150,900	15,931,750
Gain in 1935	3,092,600		3,219,200	
Gain per cent	18.5		20.2	

*The Duluth District reported this figure in barrels in 1934 which is not in agreement with the published tonnage figure of 373,586. The figure is supported however by a report of increased shipments to Superior in 1935 by Standard of Indiana and by the close agreement of gains in receipts and shipments.

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tanker moored in the Detroit river at Wyandotte. The company has sold out its interest in this location, it is said, and has taken up a new location at Detroit. Several of the smaller lake ports made substantial gains in receipts of refined products in 1935, St. Joseph, Muskegon, Traverse City, Bay City, and Lorain. Lorain is a new port on the list and its receipts were all fuel oil. Although not as important as gasoline by far in lakewise shipments, fuel oil constituted 1,500,000 barrels of the lake shipments from Indiana Harbor and an equal amount from Toledo. Cleveland shipped 208,000 barrels and Buffalo 171,000 barrels. Detroit was again the leader in consumption, with receipts of over 2,100,000 barrels.

Kerosine continued to decline in importance and 500,000 barrels, 95 per cent from Indiana Harbor, roughly covers the volume of shipments. Superior, Green Bay, Wis., and Detroit had the largest receipts.

About the same tankers are working on the lakes this year as last. Up to June 1 the Harmony was the only Gulf tanker active, but the Transoil was leased for two trips from Toledo to Cleveland. The Regent will replace the Harmony for the rest of the season, it is said. The Harmony has made numerous trips from Toledo to Cleveland, Bay City, Detroit, and Buffalo already this season.

One of Shell's tankers has made two trips to Milwaukee so far this year. Last year no receipts of petroleum products were reported at Milwaukee. Two of the Standard of Ohio and Pure Oil tankers are engaged in bringing crude from Bay City to Toledo and the third, the barge Fueloil, is being towed out of Toledo by the Record. Standard of Indiana tankers are covering their accustomed routes. The first shipments to Superior reached there about May 12.

All of Allied Oil Co. tankers are busy also. Three are working out of Indiana Harbor with cargoes for Cleveland, Bay City, Detroit, and Buffalo. The Crudoil has made two trips from Detroit to Chicago with cargoes of Tarvia. The A. J. Patmore is making almost daily trips carrying oil from Cleveland to Toledo for the Sun Oil Co. The Comet and Crudoil are carrying "dirty" products while the General Markham carries gasoline from Indiana Harbor.

In addition to the regular tankers plying the lakes there are several barges feeding lakewise commerce or actually moving on the lakes themselves. The Socony Vacuum barges are self-propelled and have a carrying capacity equal to some of the tankers built for deep water service. The Boston Socony and New Haven Socony, both of which have been to Cleveland twice this year, have around 700,000 barrels capacity which is equivalent to Allied's Crudoil and Standard of Ohio's and Pure's Mexoil and Panoil. They are larger than the A. J. Patmore and Gulf's Harmony and Supreme. The Socony barges have been coming to Cleveland by way of the New York State Barge Canal, Oswego Harbor, Lake Ontario, and the Welland Canal.

Last year The Texas Co. and Globe Oil and Refining Co. barges supplied the Illinois Waterway and the Chicago Ship and Sanitary Canal carrying 1,700,000 barrels of refined products to Chicago and Indiana Harbor, East Chicago. Texas company products were transferred at East Chicago to the tanker Maine for shipment to lake ports.

Two other tugs pulling two oil barges each are also reported in operation. One is carrying oil from Indiana Harbor to Bay City and Detroit and the other is believed to be carrying crude from Bay City to Toledo. According to Jones and Laughlin, this company was awarded a contract in February to build an oil barge for W. H. Gahagan of Brooklyn for Chicago-Green Bay service.

Oil Companies Using Great Lakes Transportation

Company	Terminals	Ships from
Standard Oil (Indiana)	Superior, Wis.	East Chicago
	Green Bay, Wis.	
	Muskegon, Mich.	
	Detroit	
	Bay City, Mich.	
Shell Petroleum Corp.	Muskegon	East Chicago
	St. Joseph, Mich.	Wood River, Ill.
	Bay City	
	Toledo	
	Cleveland	
	Buffalo	
Socony Vacuum Oil Corp.	Muskegon	Detroit
	Cleveland	East Coast
	Buffalo (Colonial Beacon)	
The Texas Co.	Chicago	Lockport, Ill.
	East Chicago	East Chicago
	Detroit	
	Cleveland	
	Buffalo	
Gulf Oil Corp.	Detroit	Toledo
	Cleveland	
	Bay City	
Pure Oil Co.	Toledo	Bay City
	Buffalo	
Standard of Ohio	Cleveland	Bay City
	Toledo	
Mid-Continent Petroleum	St. Joseph	East Chicago
Thiesen-Clemens	Traverse City (Rennie Oil Co.)	
	Port Huron (Star Oil Co.)	
	Detroit	
	Bay City	
Sun Oil Co.	Toledo	Cleveland
	Buffalo	East Coast
Cities Service Oil Co.	Detroit	East Chicago (Empire Oil & Ref. Co.)
	Bay City	
Sunny Service Oil Co.	Detroit	
Wiloil Corp.	Detroit	
	Toledo	
Dixie Terminals Oil Co.	Detroit (Staebler Oil Co.)	
Allied Oil Co.	Cleveland	
Frontier Fuel Oil Corp.	Buffalo	
Petroleum Wholesale Co.	Buffalo	East Coast
Globe Oil & Refining Co.	Detroit	Chicago Sanitary and Ship Canal

• MARKETS •

CLEVELAND, June 8

STIMULATED by an active demand following the Memorial Day holiday, movement of gasoline increased substantially the first week of June. While the threat of lower gasoline prices was not entirely dissipated, spot offerings were not so plentiful and the downward trend in prices was halted.

Demand for bright stock and neutrals, either as such or in the form of motor oils remained steady. Buyers were showing little interest in kerosine. Stocks of natural gasoline were piling up at some plants.

The combination of curtailed crude runs and increased buying by jobbers to replace stocks depleted by the heavy holiday consumption had a bolstering effect on gasoline prices. While much of the increased buying was on contracts, open market buying was sufficient to be a factor. Buying in both categories was sufficient to take virtually all the surplus offerings which have recently been overhanging the market.

One of the most favorable market factors during the week was the report issued by the American Petroleum Institute showing refinery operations the last week of May. Refiners reporting to the Institute curtailed their runs 43,000 barrels on daily average during the week as compared with the previous week. This was the largest reduction in crude runs in any week so far this year.

The report also showed that refiners' inventories of finished and unfinished gasoline declined 1,380,000 barrels during the week. While stocks at the end of May were still about 7,700,000 barrels higher than at the same time a year ago, they were nearer together than at any time since the end of February as compared with the same time a year ago.

Observers generally agreed that if crude runs were reduced another 60,000 barrels daily average, and were held at that level, the threat of lower gasoline prices would be materially reduced. The basis for this belief appears in the fact that consumption is currently running at least as well as early estimates indicated. While many companies have reported gasoline consumption in May as much as 25 per cent above a year ago, it seems likely that for the country as a whole it was at around 10 per cent more. Early estimates had predicted an 8 per cent increase in May.

The better position of gasoline was first reflected in the Mid-Western and Mid-Continent markets. Considerable gasoline had been offered recently by East Texas refiners. These offerings had not been absorbed as fast as they were made. Prices declined as the law of supply and demand went into operation. Other Mid-Continent districts, also dependent on the spot market, reduced their prices in order to keep their production moving. Both the Mid-Continent and Mid-Western markets were on the verge of a wide open break.

Then came the holiday with its almost perfect motoring weather. Just before the holiday jobbers had built up their stocks, but the heavy consumption depleted them. Some of the larger companies found their own production insufficient to meet their requirements. They immediately went into the spot market as buyers. Refiners soon raised their prices 0.125 to 0.25 cent. Some refiners had to withdraw from the open market when they found it would take up to 10 days to fill orders on hand.

Many traders expressed the opinion last week that the small advances made in prices failed to reflect the entire improvement in the markets. The market picture had been changed, almost over night, from one of chaos to one in which supply and demand were in fairly good balance.

About the only unsettling factor in the Mid-Western market was the retail situation in lower Michigan. Service station prices were reduced 1 cent in the lower peninsula of Michigan except at points which were already 2 cents below normal.

Most of the activity in gasoline markets along the eastern seaboard was confined to movement against contracts. Spot buying spurted early in the week but it did not last. Contract shipments were heavy all week.

The unsettled retail markets in the seaboard area showed little improvement. Some traders reported that the number of stations selling low-priced gasoline was not as large as it was two weeks ago, but the increases were only slight.

Bunker oil was the only item in the Gulf market of much interest. One sale of 50,000 barrels of Grade C bunker oil at 82 cents a barrel was reported. Delivery was to be made at a Gulf coast terminal.

New York and New Orleans wax markets were slightly lower, but buyers showed more interest in that product following the reduction. On the other hand refiners in many cases were refusing to meet the lower prices, and sending their production to storage.

N. P.N. Gasoline Index

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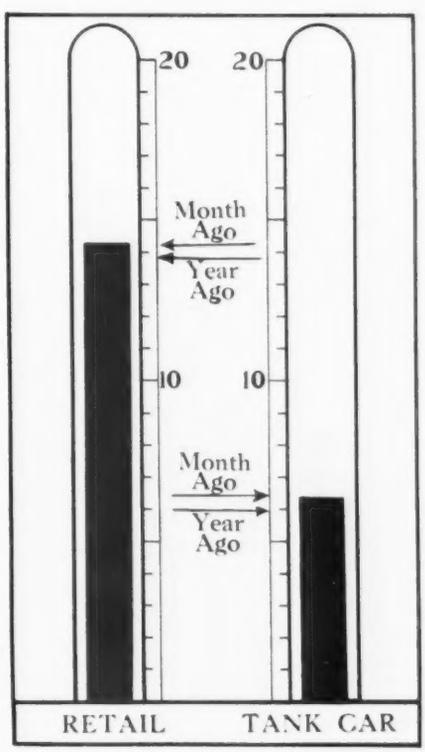


Retail index is an average of 50 cities, ex-tax, and tank car is a weighted average of 13 wholesale markets for regular-grade gasoline. The gasoline price index this week represents the following price in cents per gallon:

	Retail	Tank Car
June 8	14.32	6.37
Month ago	14.26	6.42
Year ago	13.83	5.98

Mid-Continent

Buying Firms Gasoline

TULSA, June 6

THE Mid-Continent gasoline market, regaining its stride and acquiring new energy the first week of June, presented a picture far different from the one of the previous week when the market gave every appearance of just staggering along.

Several factors combined to pump this new energy into the market. In the first place, Memorial Day holiday consumption generally was reported to be all that could be desired. Jobbers accordingly were active throughout the week buying to replenish depleted stocks. Then there was the American Petroleum Institute's refinery report for the last week of May, showing crude runs to stills had been reduced generally throughout the country. There also was the report of the heavy draft on gasoline stocks. Finally the crude oil situation in the Mid-Continent gave indications of working to more stable ground. At the same time that report became general that refiners in the Mid-Continent were going to reduce crude runs further.

East Texas naturally was the first district to sense the change in the market. Whereas there had been a few cars of gasoline offered at concession prices and admittedly was "in distress" the last week of May, there was virtually no free offering of gasoline in that area by the middle of the first week in June. Several refiners reported they were shipping more gasoline into the middle western consuming area than they had in some time. Two or three refiners late in the week reported they were so well sold up they would have little gasoline to offer for the next week or 10 days. At least two of them reported they would store their small amount of surplus gasoline until the market price had advanced at least 0.25 cent a gallon.

Prices in the "low" spots in the Mid-Continent began to move up slowly until the end of the week quotations were more uniform throughout the area than had been the case for two or three weeks.

In addition to the increase in spot buying, refiners reported also a noticeable gain in the shipments to contract customers.

The reduction in crude runs at refineries tended to let natural gasoline shipments to those plants pile up somewhat. Particularly was that situation noticeable in Oklahoma. The result was a slight price decline late in the week. The fact that Texas prices did not move downward also was due largely to the fact that manufacturers continued to move surplus supplies to Gulf coast terminal storage.

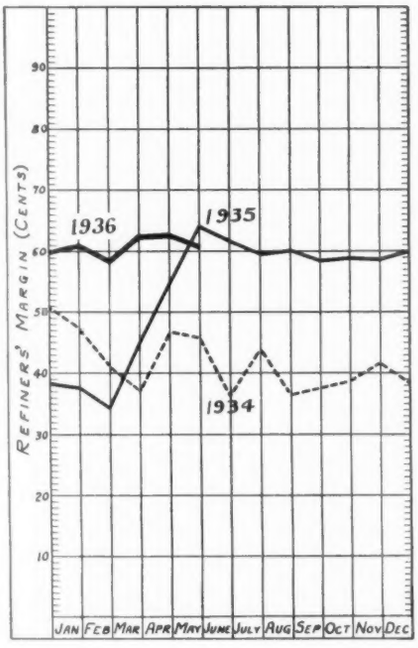
While there was little new interest shown in natural gasoline for movement to the West coast, it was generally known that one or more cargoes would be lifted later this month, which might tend to relieve the overburdened storage situation now existing at the Gulf.

The kerosine market continued to show little sign of life. In the East Texas area kerosine was backing up somewhat at refineries and quotations were slightly lower late in the week. The same was true to a lesser extent in other districts. Sellers generally said they did not expect any appreciable change in the situation much before the latter part of the month.

Lubricating oils continued in fair demand with stocks relatively low for this season of the year, a majority of refiners reported. Prices were unchanged during the week.

Little attention was being given to the wax market at present, due primarily to the highly competitive export situation. Domestically demand was about normal for the season of the year. One large manufacturer of wax reported his stocks were the lowest they had been in several years.

N. P. N. Refinery Index



Refinery Index is the calculated average return from refining a barrel of 36 gravity Mid-Continent crude. The Index this month indicates the following margins in cents per barrel between cost of crude and selling price of products (See N.P.N., Aug. 28, p. 26):

Date	Margin
June 1	60.7
Month ago	62.7
Year ago	64.1

Pennsylvania

Lube Demand Steady

CLEVELAND, June 6

UNDER the stimulus of a steady demand, gasoline, neutrals and dark and bright stocks remained steady to higher in the Pennsylvania market the week ended June 6. On the other hand, price concessions were made on kerosine and fuel oil, particularly in the lower field where prices were reduced by several refiners.

Dark stocks, with exception of 630 flash stock, were advanced 0.5 cent as buyers bid up the price in attempts to obtain sufficient oil. After suffering a slight set-back early in the week, wax markets recovered somewhat. As the week ended, the downward trend in prices appeared to have been broken.

Gasoline was the most active item on the list. Replacement buying as the result of heavy consumption over the Memorial Day holiday both against contracts and open market commitments tended to curtail the volume of new offerings by refiners. While movement of 65 octane particularly was large, U. S. Motor prices reflected a larger movement in relation to offerings. Most sellers continued to quote 7 cents for 65 octane, while some sellers advanced their quotations on U. S. Motor 0.125 cent to 5.625 cents. As the week ended, however, some suppliers still were selling U. S. Motor at 5.5 cents.

Neutral oils were inclined to be scarce. Some buyers reported difficulty in obtaining supplies. This was due, traders said, to the fact that about half the refiners were on the buying side of the market. Several refiners, normally sellers, were buying neutrals. At the end of the week, 25 pour test, 200 vis. neutral was still offered to the trade at 20.5 cents.

Bright stock showed little change during the week. Spot offerings were well held. Buyers were absorbing about all the new offerings that appeared on the market. Refiners' inventories decreased during May.

Fuel oil and kerosine prices were reduced 0.125 cent by several refiners in the lower field. Competition from other refining districts was reported to be cutting into the normal marketing territory of the Pennsylvania refineries. Inventories, particularly fuel oil, remained in fairly good shape.

Most reports indicated that both fuel oil and kerosine were fairly well held in the Bradford-Warren district. Some price shading was reported, however, on some types of business.

Following a few small sales of wax at slightly lower prices early in the week, the wax market showed a firmer trend as refiners generally refused to meet the lower prices bid by buyers.

Coastal

Bunker Oil Tight

NEW YORK, June 6

INTEREST in the cargo market at the Gulf continued to center on bunker oil the past week. Generally speaking, the market was quiet and prices for the most part were unchanged from those prevailing the last week in May.

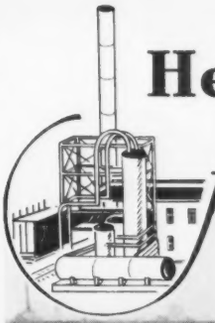
Although the sale of a substantial quantity of bunker oil was reported the past week, suppliers generally said it was not indicative of any easing in the tight position which this product has held for several weeks. The sale, while not against a written contract, was said by the seller to be more of a routine nature. The order called for approximately 50,000 barrels of Grade C at $0.82 a barrel for delivery to a Gulf Coast terminal.

While Grade C oil was said to be available by some traders at $0.80 a barrel, at least three buyers, willing to pay $0.82 and higher, continued to report their inability to obtain an offer under $0.82. They indicated they might pay as high as $0.90, but said their efforts to obtain offerings at any price had been so futile that, as yet, they had not made a firm offer at above $0.82.

Explanation of the current tight bunker oil market offered by some well informed observers covers a period of several years. Before the oil import "tariff" was imposed in 1932, many large companies along the eastern seaboard stocked up heavily with South American oil. Some large oil companies were said to have laid in as much as a year's commitments with their contract accounts. Then came a longer period of low tanker rates which brought an influx of California heavy fuel to the eastern seaboard. Following this was a period during which the surplus which had accumulated in the Gulf area had to be worked off. This was accomplished late last year. As business generally picked up, some 100 oil burning ships which had been tied up during the early depression years were brought back into service. The Gulf market then attained a tight position which still prevails.

High octane gasoline remained tight and no shading of prices was reported in the domestic market. Inquiries were lacking, but buyers, as well as sellers, said that 6.125 cents would doubtless be paid if a sale of 65 octane gasoline were to be negotiated. Stocks of low octane gasoline were said to be accumulating at a rather rapid rate at the Gulf, and some suppliers expressed concern over the disposal of this material. As yet, however, no shading of quotations has been reported.

The export gasoline market re-



Helping You Move It

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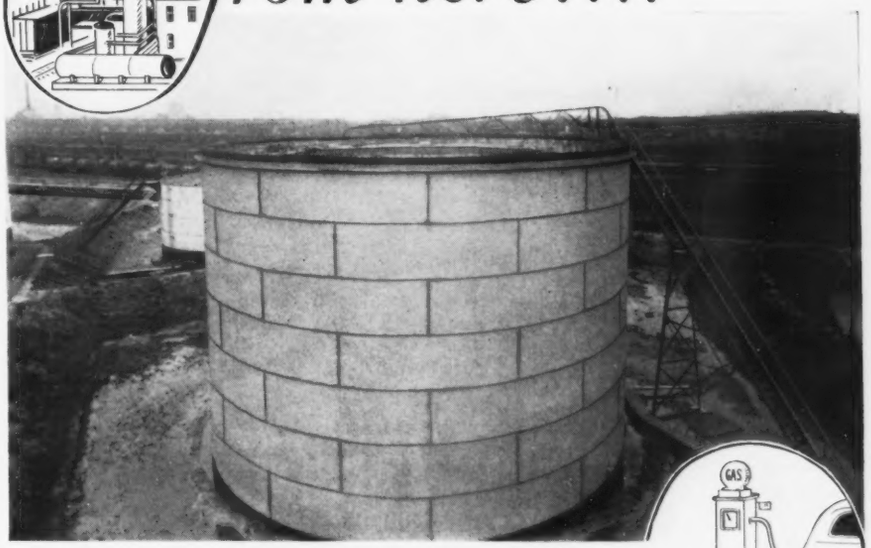

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With Minimum Loss!

"There's many a slip twixt cup and lip" and there is also many a chance for loss between the time finished oil leaves the refinery and the time it is finally delivered to the consumer. One of the greatest losses is occasioned by the natural tendency of most oil products to evaporate. This is why many marketing organizations have taken advantage of the opportunities offered by Horton evaporation reducing equipment to make their operations easier, more efficient, and more economical.

The above picture offers an example of what can be accomplished. This shows one of the 20,500 bbl. Wiggins Pontoon Roof Tanks used by the bulk terminal of the Sun Oil Co. at Hamtramck, Michigan. Gasoline comes in through an 80 mile pipeline from Toledo, Ohio, and goes out at the rate of some 140,000 gals. daily to filling stations in the Detroit metropolitan area. With ordinary tanks, the filling loss alone might easily amount to 280 gal. each day. With Wiggins Pontoon Roof tanks there is no filling loss because the roof floats directly on the surface and there is no space above the liquid for vaporization to occur. Breathing losses, also, are reduced to a very low percentage.

Write our nearest office for information on tanks for marketing installations.

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Plants in Chicago, Birmingham, and Greenville, Pa.

Cleveland	2206 Rockefeller Bldg.	Dallas	1439 Dallas Athletic Club Bldg.
Chicago	2125 Old Colony Bldg.	Birmingham	1534 N. Fiftieth St.
New York	3345—165 Broadway Bldg.	Houston	2919 Main Street
Philadelphia	1614—1700 Walnut St. Bldg.	Tulsa	1607 Thompson Bldg.
Boston	1516 Consolidated Gas Bldg.	San Francisco	1060 Rialto Bldg.
Detroit	1513 Lafayette Bldg.	Los Angeles	1422 Wm. Fox Bldg.

mained quiet but as yet there has been no indication of a further easing of Gulf prices from the lower levels reached the middle of May. The spread between the Roumanian and Gulf markets has widened to 0.25 cent, according to reports, with light gasoline offered at 5.25 cents, on the basis of f.o.b. the American Gulf, as against 5.5 cents quoted by Gulf suppliers for 64-66.

Chicago

Gasoline Steadier

CHICAGO, June 6

AS goes East Texas, so goes the Mid-Western market", is an axiom which again proved itself last week, as East Texas gasoline was in the vanguard of advancing tank car markets.

The re-entry of inter-refinery buying, which cleaned up virtually all of the surplus East Texas gasoline which had been offered through this market, coupled with increased takings in the open market, resulted in an improved Mid-Western gasoline market the first week of June.

The fractional advance in prices for U. S. Motor, 62 octane and below, however, did not entirely reflect the improvement registered in the market the past week or more. When inter-refinery buying stepped into the breach occasioned by surplus offerings which were not being absorbed, the market had been teetering on the edge of more serious reductions than had been registered in published prices. Shading had been increasing. Short selling, virtually always a sure sign of sloppy markets, also had 'grown to proportions not reached this year.

The purchase of East Texas low octane gasoline for movement to the Gulf, or in inter-refinery transactions, however, changed this picture over night. Where formerly the market had been harrassed by surplus and short offerings, it was now one which saw short sellers scurrying to cover, and a fairly stable balance between open market supply and demand.

East Texas refiners who had been active through Chicago sellers had either withdrawn, or advanced quotations following the refinery buying support. Refiners in other districts, dependent upon open market sales, and who had been forced to follow the market downward to move production, were asking higher prices as competition for existing business became less keen.

Favorable reports regarding gasoline consumption over the middle west were heard. Several distributors estimated that gallonage for May 1936 would be up to 15 or 20 per cent over last year. More conservative estimates, however, place the increase nearer 10 per cent.

The one discordant note in an otherwise harmonious gasoline market was the retail situation in the lower peninsula of Michigan. This area has been a hotbed of price cutting for some time, and retail prices had been below normal. On June 5 gasoline was further reduced 1 cent a gallon generally throughout the lower half of the state, with the exception of Detroit.

No changes in retail prices were noted in other metropolitan centers of the Standard of Indiana territory last week.

Kerosine continued to ebb lower in the Mid-western market as offerings were outdistancing demand, and sellers were trying to force buying with shading quotations.

Prices for 41-43 and 42-44 w.w. grades were 0.125 cent lower. An increasing amount of shading of these prices was encountered as the week ended.

Eastern

Open Market Buying Light

NEW YORK, June 6

OPEN market activity in tank car and barge gasoline markets along the eastern seaboard was virtually at a standstill the first week in June. Shipments against contracts were heavy. Prices, although largely nominal, were steady. Kerosine also was quiet.

Suppliers for the most part reported excellent movement of gasoline against contracts. Early in the week there was a slight increase noted in open market sales in some quarters but this died down quickly. The breach between the metropolitan New York retail market, and the New York harbor wholesale markets, remained too narrow to encourage open market buyers to lay in any more than their immediate requirements.

Distributors generally reported heavy consumption over the Memorial Day weekend and New York traders indicated that replacement buying was the heaviest for any early-in-the-week period so far this year.

Improvement in the retail market in Brooklyn and Queens was reported from some quarters. Many of the low-priced stations had raised their prices by the end of the week. While their increase in prices was only slight, and they were still 2.2 cents under the so-called normal price of 19.2 cents posted by major companies, it was felt that at least the trend was in the right direction, and that before long prices would be on a more uniform basis in the country's largest consuming area.

The Manhattan retail market remained unsettled in spots. Cut prices there, however, were said to be more in the nature of retaliation for the price cutting across the river in Brooklyn and Queens. The Manhattan market would be quick to reflect any improvement on Long Island, it was believed in most quarters.

The majority of suppliers still posted 7 cents for the 65 octane and above gasoline at most points along the seaboard. Barge quotations were 0.25 cent less.

Kerosine continued quiet. Prices were fairly steady. Inventories at seaboard terminals were in good shape.

California

Prices Unchanged

LOS ANGELES, June 5

NO IMPORTANT changes were made in quotations on Pacific Coast petroleum markets the past week. Because of the shortage of natural gasoline, independent refiners with stocks of low-grde gsoline were unable to flood the market with gasoline at cut-rate prices but a legitimate outlet for their product was provided by the willingness of major companies to purchase it at a net price of about 7.25 cents a gallon. The situation in southern California was also helped by the new policy of two independent refiners that, in the past, have furnished most of the cut-rate gasoline in the Los Angeles Basin area. These marketers established a tank wagon price of 12.5 cents a gallon, inclusive of 4 cents tax, for their branded gasoline and 11.75 cents a gallon at the rack for unbranded gasoline. These quotations compared with the established price of 13 cents a gallon for deliveries in the same area of major company third grade brands and for the remainder of independent competitive brands. Marketing companies generally have decided to require their distributors to maintain the refiners' own established retail posted prices.

These developments were expected to strengthen the market in the San Joaquin Valley and in northern California, where isolated price wars have threatened the price structure.

Natural gasoline quotations were easier, although premiums of 2 cents a gallon over the average field price of 6.5 cents a gallon were asked by producers in most fields. Rumors of additional purchases of natural gasoline for tanker transportation from Gulf ports to Los Angeles persisted. They were generally discredited, however, in view of the difficulty of securing suitable charters and the downward trend of prices for this product.

No improvement was shown in the demand for kerosine and kerosine distillate. Quotations on k. d. stock were particularly soft, distress product being offered at 90 cents a barrel at some independent plants in the Basin.

Gas oil also suffered from a lack

(*Continued on page* 118)

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Prices are those to domestic jobbers who resell to consumers. They do not represent inter-refinery sales, or sales for export. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Gasoline *and* Naphtha

Oklahoma	**June 8**	**June 1**	**May 25**
48-54, 450 e.p. naphtha	4.75	4.75	4.75
U. S. Motor gasoline, by octane numbers:			
62 octane and below	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
*63-67 octane	5.375– 5.625	5.375– 5.625	5.50 – 5.75
*68-70 octane (regular)	6.00 – 6.125	6.00 – 6.25	6.00 – 6.25
60-62, 400 e.p. gasoline	4.75 – 5.00	4.75 – 5.00	4.75 – 5.125
64-66, 375 e.p. gasoline	5.00 – 5.125	5.00 – 5.125	5.125
68-70, 350-360 e.p. gasoline	5.125– 5.25	5.125– 5.25	5.25

Western Penna. (Quotations and/or sales prices to car unloaders)

Bradford-Warren:			
52-54 naphtha	5.375– 5.50	5.375– 5.50	5.375– 5.50
Motor gasoline:			
U.S. Motor (58-62°)	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Minimum 60 octane	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
Minimum 65 octane	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
Minimum 70 octane			
64-66, 390 e.p. gasoline	5.75 – 5.875	5.75 – 5.875	5.75 – 5.875
68-70, 350-360 e.p gasoline	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125
Other districts:			
52-54 naphtha	5.375– 5.50	5.375– 5.50	5.375– 5.50
54-56 naphtha	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Motor gasoline:			
U.S. Motor (58-62°)	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Minimum 60 octane	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
Minimum 65 octane	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
Minimum 70 octane			
64-66, 390 e.p. gasoline	5.75 – 5.875	5.75 – 5.875	5.75 – 5.875
68-70, 350-360 e.p. gasoline	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125

California (3c tax to be added to prices if used in state)

54-58 U.S. Motor, 437 e.p. for in-state shipment	7.00 – 7.75	7.00 – 7.75	7.25 – 7.75
54-58, U.S. Motor, 437 e.p. for outside state shipment	7.00 – 7.75	7.00 – 7.75	7.25 – 7.75
58-61, 375-400 e.p. gasoline, 65 octane and above	7.25 – 8.25	7.25 – 8.25	7.50 – 8.25

†***North Texas*** (F.o.b. Wichita Falls district for shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).

U. S. Motor gasoline, by octane numbers:			
62 octane and below	4.875– 5.00	4.75 – 4.875	4.875– 5.00
*63-67 octane	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
*68-70 octane (regular)	6.00	6.00	6.00
60-62, 400 e.p. gasoline	5.00	4.875– 5.00	5.00 – 5.125
64-66, 375 e.p. gasoline	5.00 – 5.125	5.00 – 5.125	5.125
68-70, 350-360 e.p. gasoline	5.125– 5.25	5.125– 5.25	5.25

Kansas (F.o.b. refinery, Kansas destination)

U. S. Motor gasoline, by octane numbers:			
62 octane and below	5.00 – 5.25	5.00 – 5.25	5.125– 5.25
*63-67 octane	5.75 – 5.875	5.75 – 5.875	5.75 – 5.875
*68-70 octane (regular)	6.25 – 6.375	6.25 – 6.375	6.25 – 6.375
60-62, 400 e.p. gasoline	5.00 – 5.25	5.00 – 5.25	5.125– 5.25

†***West Texas and New Mexico*** (F.o.b. W. Texas and N. Mex. refineries for unrestricted shipment)

U. S. Motor gasoline, by octane numbers:			
62 octane and below	4.875– 5.00	4.875	4.875– 5.00
*63-67 octane	5.50 – 5.625	5.50 – 5.625	5.625– 5.75
*68-70 octane (regular)	6.00	6.00	6.00

†***East Texas*** (F. o. b. East Texas refinery for unrestricted shipment)

U. S. Motor gasoline, by octane numbers:			
62 octane and below	4.75 – 4.875	4.75	4.75
60-62, 400 e.p. gasoline	4.875	4.75	4.75

North Louisiana (For Louisiana and Arkansas destination)

U. S. Motor gasoline:			
62 octane and below	5.75	5.75	5.75
*63-67 octane	6.50	6.50	6.50
*68-70 octane (regular)	6.75	6.75	6.75

†Refiners generally receive from 0.25c to 0.5c per gallon more for gasoline and kerosine for local or differential territory shipment.

*Octane numbers revised to this basis April 15. Formerly, the two higher classifications were 63-70 octane and 71 and above.

	June 8	**June 1**	**May 25**
Arkansas (For Arkansas and Louisiana destination)			
U. S. Motor Gasoline:			
62 octane and below	5.75	5.75	5.75
*63-67 octane	6.50	6.50	6.50
*68-70 octane (regular)	6.75	6.75	6.75
Ohio (Quotations of S. O. Ohio. Delivered any point in Ohio).			
U. S. Motor gasoline	8.75	8.75	8.75
Above 65 octane no.	9.00	9.00	9.00

Natural Gasoline

(Prices shown f.o.b. Group 3 and Breckenridge represent majority of sales made on dates shown to blenders on the freight basis shown below, although shipments may originate in other manufacturing districts, such as East Texas, Panhandle, Southwest Texas or Kansas).

F.o.b. Group 3			
Grade 26-70	2.625	2.75	2.75
F.o.b. Breckenridge			
Grade 26-70	2.50	2.50	2.50
California (F. o. b. plants in Los Angeles basin)			
75-85, 375-390 e.p. for blending	8.00 – 8.50	8.25 – 8.75	8.25 – 9.00

Kerosine

Western Penna. (Quotations and/or sales prices to car unloaders)

Bradford-Warren:			
45 w.w. kerosine	5.25 – 5.375	5.25 – 5.375	5.25 – 5.375
46 w.w. kerosine	5.375– 5.50	5.375– 5.50	5.375– 5.50
47 w.w. kerosine	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Other districts:			
45 w.w. kerosine	5.25 – 5.375	5.375– 5.50	5.375– 5.50
46 w.w. kerosine	5.375– 5.50	5.50 – 5.625	5.50 – 5.625
47 w.w. kerosine	5.50 – 5.625	5.625– 5.75	5.625– 5.75
Oklahoma			
41-43 kerosine	3.875– 4.125	4.00 – 4.25	4.00 – 4.25
42-44 w.w. kerosine	4.125– 4.375	4.25 – 4.50	4.25 – 4.50
Kansas (F. o. b. refinery Kansas destination)			
41-43 w.w. kerosine	4.50 – 4.625	4.50 – 4.625	4.50 – 4.625
42-44 w.w. kerosine	4.625– 4.75	4.625– 4.75	4.625– 4.75

†***North Texas*** (F.o.b. Wichita Falls district or shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).

41-43 w.w. kerosine	4.00 – 4.25	4.25 – 4.375	4.375

East Texas (F.o.b. East Texas refinery for unrestricted shipment)

41-43 w.w. kerosine	*3.625	*3.875	*3.875– 4.00

*Nominal

North Louisiana (For Louisiana and Arkansas destination)

41-43 w.w. kerosine	4.25 – 4.375	4.25 – 4.375	4.25 – 4.375

Arkansas (For Arkansas and Louisiana destination)

41-43 w.w. kerosine	*4.50 – 4.625	*4.50 – 4.625	*4.50 – 4.625

*Only one refiner quoting.

California (F.o.b. California refineries)

38-40 w.w. kerosine	3.00 – 5.00	3.00 – 5.00	3.00 – 5.00

Gas *and* Fuel Oils

Western Penna. (Quotations and/or sales prices to car unloaders)

Bradford-Warren:			
36-40 fuel oil	4.625– 4.75	4.625– 4.75	4.625– 4.75
‡*Other districts*:			
36-40 fuel oil	4.625– 4.75	4.75 – 4.875	4.75 – 4.875

‡Not including Pittsburgh.

Oklahoma (F.o.b. Oklahoma refineries)

No. 1 white fuel oil	3.625– 3.75	3.75 – 3.875	3.75 – 4.00
No. 1 straw fuel oil	3.375– 3.50	3.375– 3.50	3.375– 3.50
No. 2 straw fuel oil	2.75	2.75 – 2.875	2.875– 3.00
No. 2 dark fuel oil	2.625	2.625– 2.75	2.75 – 2.875
U. G. I. gas oil	2.50	2.50 – 2.625	2.50 – 2.625

(*Continued on next page*)

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Prices are those to domestic jobbers who resell to consumers. They do not represent inter-refinery sales, or sales for export. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

	June 8	June 1	May 25
Fuel oils: (Prices per barrel of 42 U. S. gallons)			
28-30, zero	2.875–3.00	2.875–3.00	2.875–3.00
28-30	$1.00–$1.10	$1.00–$1.10	$1.00–$1.10
24-26	$0.80–$0.85	$0.80–$0.85	$0.80–$0.85
18-22	$0.725–$0.75	$0.725–$0.75	$0.725–$0.75
14-16	$0.625–$0.65	$0.625–$0.65	$0.625–$0.65
Kansas (F.o.b. refinery, Kansas destination)			
No. 1 prime white	3.875–4.00	3.875–4.00	4.00
18-22 fuel oil (per bbl.)	$0.80–$0.825	$0.80–$0.825	$0.80–$0.825
10-14 fuel oil (per bbl.)	$0.65–$0.70	$0.65–$0.70	$0.65–$0.70
North Texas (F.o.b. Wichita Falls district for shipment to Texas and New Mexico; Group 3 prices quoted on northern shipments).			
No. 1 straw, fuel oil	3.375–3.50	3.375–3.50	3.375–3.50
No. 1 white, fuel oil	3.50–3.625	3.625–3.75	3.75–3.875
U.G.I. gas oil	2.375	2.50	2.50
No. 2 fuel oil	2.625–2.75	2.625–2.75	2.75–3.00
24-26 fuel oil (per bbl.)	$0.70–$0.725	$0.70–$0.725	$0.70–$0.725
18-22 fuel oil (per bbl.)	$0.65	$0.65	$0.65–$0.675
West Texas (F.o.b. West Texas refineries for unrestricted shipment).			
No. 2 fuel oil	*2.625–2.75	*2.625–2.75	*2.75–2.875
18-22 fuel oil (per bbl.)	$0.675–$0.70	$0.675–$0.70	$0.675–$0.70
East Texas (F.o.b. East Texas refineries for unrestricted shipment).			
No. 1 white, fuel oil	*3.50–3.625	*3.625–3.75	*3.625–3.75
U.G.I. gas oil	2.50–2.625	2.50–2.625	2.50–2.625
No. 2 fuel oil	*2.625–2.75	*2.625–2.75	*2.625–2.75
24-26 fuel oil	$0.65–$0.675	$0.65–$0.675	$0.65–$0.675
20-24 fuel oil	$0.65	$0.65	$0.65

*Nominal.

North Louisiana (For Louisiana and Arkansas destination).			
No. 2 fuel oil	2.875–3.00	2.875–3.00	2.875–3.00
U.G.I. gas oil	2.625	2.625	2.75
20-24 fuel oil (per bbl.)	$1.05–$1.10	$1.05–$1.10	$1.05–$1.10
16-20 fuel oil (per bbl.)	$0.95–$1.00	$0.95–$1.00	$0.95–$1.00
10-14 fuel oil (per bbl.)	$0.70–$0.75	$0.70–$0.75	$0.70–$0.75
Arkansas (For Arkansas and Louisiana destination)			
No. 2 fuel oil	*3.50	*3.50	*3.50–3.625
28-30 fuel oil, zero	*3.25	*3.25	*3.25
20-24 fuel oil (per bbl.)	$0.825–$0.875	$0.825–$0.875	$0.825–$0.875
16-20 fuel oil (per bbl.)	$0.725–$0.775	$0.725–$0.775	$0.725–$0.775
10-14 fuel oil (per bbl.)	$0.60–$0.65	$0.60–$0.65	$0.60–$0.65

*Only one refiner quoting.

California			
San Joaquin Valley, per bbl.:			
Grade C fuel oil	$0.65–$0.75	$0.65–$0.75	$0.65–$0.75
Diesel fuel oil	$0.95–$1.47	$0.95–$1.47	$0.95–$1.47
Stove distillate	$1.20–$1.89	$1.20–$1.89	$1.20–$1.89
Los Angeles, per bbl.:			
Grade C fuel oil	$0.70–$0.95	$0.70–$0.95	$0.70–$0.95
Diesel fuel	$0.95–$1.47	$0.95–$1.47	$0.95–$1.47
Stove distillate	$1.20–$1.89	$1.20–$1.89	$1.20–$1.89
San Francisco, per bbl.:			
Grade C fuel oil	$1.00	$1.00	$1.00
Diesel fuel	$1.68	$1.68	$1.68
Stove distillate	$2.10	$2.10	$2.10

Neutral Oils

Western Penna. (Quotations and/or sales prices to car unloaders)

	Viscous Neutrals (Viscosity at 70° F.)		
200 Vis. (180 at 100°) No. 3 color, 420-425 flash:			
0 pour test	23.00–23.50	23.00–23.50	23.00–23.50
10 pour test	22.00–22.50	22.00–22.50	22.00–22.50
15 pour test	21.50–22.00	21.50–22.00	21.50–22.00
25 pour test	20.50–21.00	20.50–21.00	20.50–21.00
180 Vis. (165 at 100) No. 3 color, 410-415 flash:			
25 pour test	19.50–20.00	19.50–20.00	19.50–20.00
150 Vis. (143 at 100) No. 3 color, 400-405 flash:			
0 pour test	19.50–20.00	19.50–20.00	19.50–20.00
10 pour test	18.50–19.00	18.50–19.00	18.50–19.00
15 pour test	18.00–18.50	18.00–18.50	18.00–18.50
25 pour test	17.00–17.50	17.00–17.50	17.00–17.50

South Texas (F.o.b. South Texas refineries, for domestic shipment)

Vis. Color			
Pale Oils:	*(Viscosity at 100° F.; pour test 0)*		
100 No. 1½-2½	5.00	5.00	5.00
200 No. 2-3	7.00	7.00	7.00
300 No. 2-3	7.50	7.50	7.50
500 No. 2½-3½	8.50	8.50	8.50
750 No. 3-4	9.00	9.00	9.00
1200 No. 3-4	9.50	9.50	9.50
2000 No. 3-4	9.75–10.00	9.75–10.00	9.75–10.00
Red Oils:			
200 No. 5-6	7.00	7.00	7.00
300 No. 5-6	7.50	7.50	7.50
500 No. 5-6	8.50	8.50	8.50
750 No. 5-6	9.00	9.00	9.00
1200 No. 5-6	9.50	9.50	9.50
2000 No. 5-6	9.75–10.00	9.75–10.00	9.75–10.00

Note: South Texas red oil prices shown above cover oils with green cast: blue cast red oils are slightly lower in some cases.

Mid-Continent (Viscosity at 100° F.; F. o. b. Tulsa basis. Prices represent quotations and sales)

	0 to 10 Pour Point:		
Pale Oils:			
Vis. Color			
60-85—No. 2	5.25	5.25	5.25
86-110—No. 2	5.75	5.75	5.75
150—No. 3	10.00	10.00	10.00
180—No. 3	11.25	11.25	11.25
200—No. 3	11.75	11.75	11.75
250—No. 3	13.75	13.75	13.75
280—No. 3	14.75	14.75	14.75
300—No. 3	15.25	15.25	15.25
Red Oils:			
180—No. 5	10.25	10.25	10.25
200—No. 5	10.75	10.75	10.75
250—No. 5	12.75	12.75	12.75
280—No. 5	13.75	13.75	13.75
300—No. 5	14.00	14.00	14.00

Note: Non-Viscous pale oils (60-110 vis.), 15 to 25 pour point are generally quoted 0.5c under 0 to 10 pour point oils; pale and red viscous oils (150-300 vis.) with 15 to 25 pour point are generally quoted 1c under 0 to 10 pour point oils. Viscous oils (150-300 vis.), No. 4 color, are generally quoted 0.5c above No. 5 color oils.

Chicago (F.o.b. Chicago District refineries) (Vis. at 100° F)

Pale Oils, *15 to 30 pour point:			
Vis. Color			
60-85—No. 2	6.50	6.50	6.50
86-110—No. 2	7.00	7.00	7.00
150—No. 3	10.00	10.00	10.00
180—No. 3	11.25	11.25	11.25
200—No. 3	11.75	11.75	11.75
250—No. 3	13.75	13.75	13.75
Red Oils, *15 to 30 Pour Point:			
180—No. 5	10.25	10.25	10.25
200—No. 5	10.75	10.75	10.75
250—No. 5	12.75	12.75	12.75
280—No. 5	13.25	13.25	13.25
300—No. 5	13.50	13.50	13.50

*60-110 vis. oils, with 0-10 pour point, bring 0.5c higher than above prices. Other oils with 0-10 pour point are quoted at 1c higher. To obtain prices delivered in Chicago, add 0.25c per gal.

California (F.o.b. California refineries; Viscosity at 100° F.)

All neutral oils, 11.5c per gal. in tank car lots; and 13.5c in iron bbls., to refiners only, excluding federal tax.

Cylinder Stocks

Mid-Continent (F.o.b. Tulsa basis. Prices represent quotations and sales)

Bright Stocks:			
190-200 Vis. at 210° D	21.50	21.50	21.50
150-160 Vis. at 210°D:			
0 to 10 pour test	18.50	18.50	18.50
10 to 25 pour test	18.00	18.00	18.00
25 to 40 pour test	17.50	17.50	17.50
150-160 Vis. at 210° E	17.50	17.50	17.50
120 Vis. at 210° D:			
0 to 10 pour test	18.00	18.00	18.00
10 to 25 pour test	17.50	17.50	17.50
25 to 40 pour test	17.00	17.00	17.00
600 Stm. Rfd. Dark Green	5.75–6.50	5.75–6.50	5.75–6.50
600 Stm. Rfd. Olive Green	6.75–8.00	6.75–8.00	6.75–8.00
631 Steam Refined	*13.50	*13.50	*13.50
Black Oil	3.25–3.375	3.25–3.375	3.25–3.375

*Only one refiner quoting.

Chicago (F.o.b. Chicago district refineries) (Viscosity at 210°)

Unfiltered Steam Refined:			
140	9.00	9.00	9.00
160	10.00	10.00	10.00
200	11.00	11.00	11.00
Bright stocks, 160 vis. at 210 No. 8 color:			
0 to 10 pour point.	20.25	20.25	20.25
15 to 25 pour point.	19.75	19.75	19.75
30 to 40 pour point.	19.25	19.25	19.25
E filtered Cyl. Stock	14.50	14.50	14.50

To obtain prices delivered in Chicago, add 0.25c per gal.

Western Penna. (A.S.T.M. tests; quotations and/or sales prices to car unloaders)

600 stm. rfd. filterable	13.50–14.00	13.00–13.50	13.00–13.50
650 steam refined	14.50–15.00	14.00–14.50	14.00–14.50

(*Continued on next page*)

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Prices are those to domestic jobbers who resell to consumers. They do not represent inter-refinery sales, or sales for export. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Cylinder Stocks (cont'd)

	June 8	June 1	May 25
600 flash	15.50 –16.00	15.00 –15.50	15.00 –15.50
630 flash	17.50 –18.00	17.50 –18.00	17.50 –18.00
600 Warren E	15.50 –16.00	15.00 –15.50	15.00 –15.50
Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:			
10 pour test	24.50 –25.00	24.50 –25.00	24.50 –25.00
15 pour test	23.50 –24.00	23.50 –24.00	23.50 –24.00
20 pour test	22.50 –23.00	22.50 –23.00	22.50 –23.00
25 pour test	21.50 –22.50	21.50 –22.00	21.50 –22.00

Petrolatums

Western Penna. (Per pound, in barrels, carload lots, f.o.b. Penna. refinery. In tank cars, 0.5c per pound less. Quotations are from majority of petrolatum makers).

Snow White	6.625	6.625	6.625
Lily White	5.625	5.625	5.625
Cream White	4.625	4.625	4.625
Light Amber	2.75	2.75	2.75
Amber	2.50	2.50	2.50
Red	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125

Wax

	June 8	June 1	May 25
Western Penna. (Per pound, f.o.b. New York)			
122-124 wh. crude scale, A.m.p.	2.30 – 2.35	2.30 – 2.35	2.35 – 2.40
124-126 wh. crude scale, A.m.p.	2.35 – 2.40	2.35 – 2.40	2.40 – 2.45

Oklahoma (Per pound in barrels; n a few instances, per pound in burlap bags; f.o.b. Oklahoma refineries)

124-126 wh. crude scale, A.m.p.	2.50	2.50 – 2.625	2.50 – 2.625

Chicago (F.o.b. Chicago district refineries, in cents per pound, in bags, carload lots. Melting points A.S.T.M. method; add 3° F. to convert into A.m.p.)

Fully refined:			
122-124	4.65 – 4.75	4.65 – 4.75	4.65 – 4.75
125-127	4.90 – 5.00	4.90 – 5.00	4.90 – 5.00
127-129	5.05 – 5.15	5.05 – 5.15	5.05 – 5.15
130-132	*5.45 – 5.55	*5.45 – 5.55	*5.45 – 5.55
132-134	*5.70 – 5.80	*5.70 – 5.80	*5.70 – 5.80
135-137	*6.45 – 6.55	*6.45 – 6.55	*6.45 – 6.55

*Same prices quoted in bags or slabs loose.

MID-WESTERN TANK CAR MARKETS

Following prices are in cents per gallon, except where otherwise noted, in tank car lots, representing majority of sales of products made by Chicago sellers, from legally produced crude to jobbers on Group 3 freight basis, although shipments may originate in other South-western or Mid-western refining districts. Prices do not include state or federal taxes.

Gasoline

U. S. Motor gasoline:	June 8	June 1	May 25
62 octane and below	4.75 – 5.00	4.75 – 5.00	4.625– 5.00
*63-67 octane	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50
*68-70 octane (regular)	5.625– 6.00	5.625– 6.00	5.625– 6.00
60-62, 400 e.p.	4.75 – 5.00	4.75 – 5.00	4.625– 5.125
64-66, 375 e.p.	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
68-70, 350-360 e.p.	5.125– 5.375	5.125– 5.375	5.125– 5.375

Kerosine

41-43 w.w.	3.75 – 4.00	3.875– 4.125	4.00 – 4.25
42-44 w.w.	4.00 – 4.25	4.125– 4.25	4.25 – 4.50

Fuel *and* Gas Oils

Domestic:			
No. 1 prime white	3.50 – 3.875	3.50 – 3.875	3.75 – 4.00
No. 1 straw	3.25 – 3.375	3.25 – 3.375	3.25 – 3.50

*Octane numbers revised to this basis April 15. Formerly, the two higher classifications were 63-70 octane and 71 and above.

	June 8	June 1	May 25
No. 2 straw	2.875– 3.00	2.875– 3.00	2.875– 3.125
No. 2 dark	2.75 – 2.875	2.75 – 2.875	2.75 – 3.00
No. 3	2.625– 2.875	2.625– 2.875	2.625– 2.875
No. 4 (per bbl.)	$0.95 –$1.00	$0.975–$1.05	$0.975–$1.05
No. 5 (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
Industrial:			
No. 4 (per bbl.)	$0.875–$0.90	$0.875–$0.90	$0.875–$0.90
No. 5, (per bbl.)	$0.625–$0.675	$0.625–$0.675	$0.625–$0.675
No. 6, (per bbl.)	$0.55 – $0.60	$0.55 – $0.60	$0.55 –$0.60
U.G.I. gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50

Naphtha *and* Solvent

Stoddard solvent	6.875	6.875	6.875
V. M. & P. naphtha	7.375	7.375	7.375
Cleaners' naphtha	7.375	7.375	7.375
Mineral spirits	6.375	6.375	6.375
Rubber solvent	7.375	7.375	7.375
Lacquer diluent	8.375	8.375	8.375

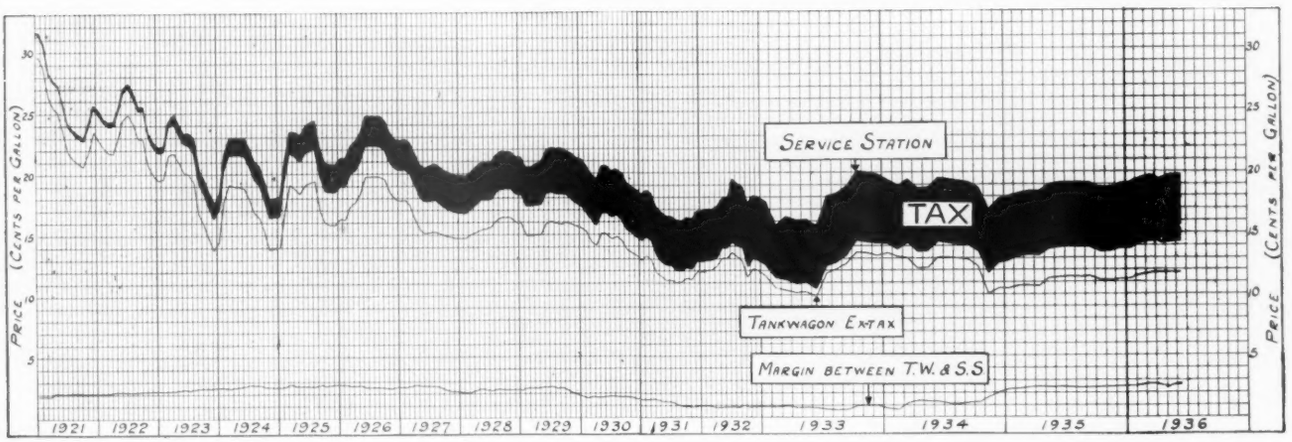
DAILY GASOLINE PRICES

Daily range of gasoline prices (cents per gallon) in tank cars, as reported in PLATT'S OILGRAM, (Week Ended June 5, 1936)

	June 1	June 2	June 3	June 4	June 5
U. S. Motor, 62 octane and below:					
East Texas	4.75	4.75	4.75	4.75	4.75 – 4.875
*North Texas	4.75 – 4.875	4.75 – 4.875	4.75 – 4.875	4.75 – 4.875	4.875– 5.00
West Texas	4.875	4.875	4.875	4.875	4.875– 5.00
Oklahoma	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
Mid-Western (Group 3 basis)	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
U. S. Motor, 63-67 octane:					
*North Texas	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
West Texas	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Oklahoma	5.375– 5.625	5.375– 5.625	5.375– 5.625	5.375– 5.625	5.375– 5.625
Mid-Western (Group 3 basis)	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50
U. S. Motor, 68-70 octane (regular):					
*North Texas	6.00	6.00	6.00	6.00	6.00
West Texas	6.00	6.00	6.00	6.00	6.00
Oklahoma	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Mid-Western (Group 3 basis)	5.625– 6.00	5.625– 6.00	5.625– 6.00	5.625– 6.00	5.625– 6.00
Motor Gasoline, 60-64 octane					
New York harbor	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
Philadelphia district	6.75	6.75	6.75	6.75	6.75
Baltimore district	6.75	6.75	6.75	6.75	6.75
Motor Gasoline, 65 octane & above					
New York harbor	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
Philadelphia district	7.00	7.00	7.00	7.00	7.00
Baltimore district	7.00	7.00	7.00	7.00	7.00
U. S. Motor Gasoline, 58-62°					
Bradford-Warren (Western Penna.)	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Other districts (Western Penna.)	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Motor Gasoline, Minimum 60 octane					
Bradford-Warren (Western Penna.)	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
Other districts (Western Penna.)		6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
Motor Gasoline, Minimum 65 octane	7.00 – 7.25				
Bradford-Warren (Western Penna.)	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
Other districts (Western Penna.)	6.75 – 7.00	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25

*For shipment to Texas and New Mexico destinations; Group 3 prices are quoted on northern shipments.

Trend of Gasoline Prices *and* Gasoline Taxes, at 50 Representative Cities



TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect June 8, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. New Jersey

Essolene

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Atlantic City, N. J.	7.8	10	4	17.5	9
Newark, N. J.	7.8	10.3	4	17.8	7.5
Annapolis, Md	8.1	10.6	5	19.1	10
Baltimore, Md	7.5	10	5	18.5	8
Cumberland, Md	9.1	11.6	5	20.1	12.7
Washington, D. C.	7.5	10	3	16.5	9
Danville, Va	9	11.5	6	21	12.9
Norfolk, Va	7.5	10	6	19.5	11.3
Petersburg, Va	8	10.5	6	20	11.7
Richmond, Va	8	10.5	6	20	11.7
Roanoke, Va	9	11.5	6	21	12.9
Charleston, W. Va	8.3	10.8	5	19.3	12.6
Parkersburg, W. Va	7.6	10.1	5	18.6	11.2
Wheeling, W. Va.	8.5	11	5	19.5	12.2
Charlotte, N. C.	8.9	11.4	7	21.9	12.6
Hickory, N. C.	9.4	11.9	7	22.4	13
Mt. Airy, N. C.	9.2	11.7	7	22.2	12.8
Raleigh, N. C.	8.5	11	7	21.5	12.1
Salisbury, N. C.	9	11.5	7	22	12.7
Charleston, S. C.	7.5	10	7	20.5	11.3
Columbia, S. C.	8.8	11.3	7	21.8	12.6
Spartanburg, S. C.	9.2	11.7	7	22.2	12.9

Price basis to undivided dealers: Dealer t.w. price less 0.5c per gal.

Price basis to commercial consumers: Beginning Feb. 11, 1935, all new commercial consumers will be signed on following differentials over tank car price, on yearly purchases: up to 35,999 gals., 2.5c over t.c.; 36,000 to 119,999 gals., 2c; 120,000 to 239,999 gals., 1.5c; 240,000 to 479,999 gals., 1c; and over 480,000 gals., 0.5c.

Above prices apply only when deliveries are made in lots of 50 or 100 gals. at one time, depending on code region in which deliveries are effected.

If deliveries are made in less than these minimum quantities, s.s. price at time and place of delivery applies.

Non-contract customers will be billed at 2.5c over tank car price at time and place of delivery.

Kerosine Discount: 1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(S. O. New York Division)

Socony Mobilgas

	"Split" Dealer T.W.	Taxes	Total "Split" Dealer T.W.	S.S.	Kerosine T.W.
Metropolitan N. Y. City:					
Boroughs of Manhattan and Bronx	9.2	*5	14.2	19.2	7.25
Borough of Richmond (Staten Is.)	9.2	*5	14.2	19.2	7.25
Borough of Brooklyn (Kings and Queens)	9.2	*5	14.2	19.2	7.25
Albany, N. Y.	9	5	14	17.5	7.75
Binghamton, N. Y.	10.5	5	15.5	19	9
Buffalo, N. Y.	9.5	5	14.5	18	8.25
Jamestown, N. Y.	10	5	15	18.5	8.25
Plattsburg, N. Y.	11	5	16	19.5	8.75
Rochester, N. Y.	9.5	5	14.5	18	8.25
Syracuse, N. Y.	9.5	5	14.5	18	8.75
Danbury, Conn	9.5	4	13.5	17	8
Hartford, Conn	9.5	4	13.5	17	7
New Haven, Conn	9	4	13	16.5	7.5
Bangor, Me	10	5	15	18.5	8
Portland, Me	9.5	5	14.5	18	7.75
Boston, Mass	8.5	4	12.5	16	7.5
Concord, N. H.	10.5	5	15.5	19	8.5
Lancaster, N. H.	11.5	5	16.5	20	9.5
Manchester, N. H.	10	5	15	18.5	8
Providence, R. I.	9	3	12	15.5	7.25
Burlington, Vt.	12	5	17	20	8.75
Rutland, Vt.	10.5	5	15.5	19	8.5

*Plus 2% city sales tax computed at time of each sale.

Discounts to dealers: thru territory, off normal s.s. price, 1c to undivided dealers, and 3.5c to "split" dealers; except Metropolitan N. Y. City, undivided dealers get 5.5c and divided dealers get 5c, effective May 7.

To commercial consumers: Effective Feb. 4, 1935, covering yearly purchases, billed at posted tank car price, plus these differentials: 2.5c for delivery of 1,200 to 36,000 gals.; plus 2c, for 36,000 to 120,000 gals.; plus 1.5c for 120,000 to 240,000 gals.; plus 1c for 240,000 to 480,000 gals.; plus 0.5c for 480,000 gals. and over. Those buying less than 1,200 gals. yearly, get retail s.s. price.

Socony-Vacuum Oil Co., Inc.—Cont'd

Socony Mobilgas

	"Split" Dealer T.W.	Taxes	Total "Split" Dealer T.W.	S.S.	Kerosine T.W.
Borough of Brooklyn (Kings and Queens)	9.2	*5	14.2	19.2	7.25
Albany, N. Y.	9	5	14	17.5	7.75
Binghamton, N. Y.	10.5	5	15.5	19	9
Buffalo, N. Y.	9.5	5	14.5	18	8.25
Jamestown, N. Y.	10	5	15	18.5	8.25
Plattsburg, N. Y.	11	5	16	19.5	8.75
Rochester, N. Y.	9.5	5	14.5	18	8.25
Syracuse, N. Y.	9.5	5	14.5	18	8.75
Danbury, Conn	9.5	4	13.5	17	8
Hartford, Conn	9.5	4	13.5	17	7
New Haven, Conn	9	4	13	16.5	7.5
Bangor, Me	10	5	15	18.5	8
Portland, Me	9.5	5	14.5	18	7.75
Boston, Mass	8.5	4	12.5	16	7.5
Concord, N. H.	10.5	5	15.5	19	8.5
Lancaster, N. H.	11.5	5	16.5	20	9.5
Manchester, N. H.	10	5	15	18.5	8
Providence, R. I.	9	3	12	15.5	7.25
Burlington, Vt.	12	5	17	20	8.75
Rutland, Vt.	10.5	5	15.5	19	8.5

*Plus 2% city sales tax computed at time of each sale.

Discounts to dealers: thru territory, off normal s.s. price, 1c to undivided dealers, and 3.5c to "split" dealers; except Metropolitan N. Y. City, undivided dealers get 5.5c and divided dealers get 5c, effective May 7.

To commercial consumers: Effective Feb. 4, 1935, covering yearly purchases, billed at posted tank car price, plus these differentials: 2.5c for delivery of 1,200 to 36,000 gals.; plus 2c, for 36,000 to 120,000 gals.; plus 1.5c for 120,000 to 240,000 gals.; plus 1c for 240,000 to 480,000 gals.; plus 0.5c for 480,000 gals. and over. Those buying less than 1,200 gals. yearly, get retail s.s. price.

Atlantic Refining

Atlantic White Flash Plus Gasoline

	Total T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Philadelphia, Pa.	11.5	5	16.5	17.5	9.5
Pittsburgh, Pa.	12.5	5	17.5	19.5	10
Allentown, Pa.	12	5	17	18	9.5
Erie, Pa.	12.5	5	17.5	18.5	8
Scranton, Pa.	11.75	5	16.75	17	10
Altoona, Pa.	12.5	5	17.5	19.5	9.5
Dover, Del.	12	5	17	17	10
Wilmington, Del.	12	5	17	17	9.5
Boston, Mass.	8.5	4	12.5	16	7
Springfield, Mass.	10	4	14	17.5	7.5
Worcester, Mass.	9.5	4	13.5	17	7.75

Atlantic Refining—Cont'd

Atlantic White Flash Plus Gasoline

	Total T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Fall River, Mass.	9	4	13	16.5	7
Hartford, Conn.	9.5	4	13.5	17	7
New Haven, Conn.	9	4	13	16.5	7.5
Providence, R. I.	9	3	12	15.5	7
Atlantic City, N. J.	10.3	4	14.3	17.8	9
Camden, N. J.	9.5	4	13.5	16.5	8
Trenton, N. J.	10.3	4	14.3	17.8	8
Annapolis, Md.	10.6	5	15.6	19.1	9.5
Baltimore, Md.	10	5	15	18.5	8
Hagerstown, Md.	11.1	5	16.1	19.6	10
Richmond, Va.	10.5	6	16.5	20	11.7
Wilmington, N. C.	10.1	7	17.1	20.6	11.4
Brunswick, Ga.	12	7	19	21	*13
Jacksonville, Fla.	10	8	18	20	12

Dealer discounts: on Atlantic White Flash Plus gasoline, thru territory, divided dealers, price equal to 3.5c off posted s.s. price; undivided dealers, price equal to 4c off posted s.s. price; authorized dealers contracts previous to Aug. 19, 1933, price equal to 3c less than posted s.s. price, plus 1c rental.

Price basis to commercial consumer: Effective Oct. 1, 1935, on yearly gasoline purchases based on posted tank car prices plus following amounts: 1,200 to 36,000 gals., 2.5c over t.c.; 36,000 to 120,000 gals., 2c; 120,000 to 240,000 gals., 1.5c; 240,000 to 480,000 gals., 1c; 480,000 gals. and over, 0.5c.

S. O. Ohio

Sohio X-70 Gasoline

Ohio statewide	12.5	5	17.5	19.5	*13.5
Counties below statewide gasoline schedule:					
Columbiana, Darke, Fairfield, Fayette, Greene, Jefferson, Knox, Licking, Madison, Mahoning, Miami, Montgomery, Pickway, Preble and Trumbull	11.5	5	16.5	18.5	....
Paulding	11	5	16	17	....
Ashtabula, Champaign, Clarke, Franklin and Lucas	11.5	5	16.5	17.5	....

Renown (Third Grade Gasoline)

Ohio statewide	12	5	17	18	....
Counties below statewide gasoline schedule:					
Darke, Greene, Miami, Montgomery and Preble;	11.5	5	16.5	18.5	....
Columbiana, Fairfield, Fayette, Jefferson, Knox, Licking, Madison, Mahoning, Pickway and Trumbull	11	5	16	17	....
Paulding	9	5	14	15	....
Ashtabula, Champaign, Clarke, Franklin and Lucas	11	5	16	16	....
Counties above statewide schedule:					
Butler, Hamilton, Hocking and Summit:	12.5	5	17.5	19.5	....

Kerosine Prices

(Off Statewide Level)

Kerosine prices are off statewide level in the following counties:

Gallia *13

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/2c per gal. in a single barrel; 3/10c per gal. in lots of 2 to 10 bbls., 1/5c for 10 to 50 bbls., 2/25c for over 50 bbls.; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal, in lots of more than 50 bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fee only: Iowa, 2/25c; Michigan, 4/5c per gal. for first 2 bbls.; 3/5c for next 3; 2/5c for next 5; 3/10c for next 15, and 1/5c per gal. in lots over 25 bbls.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect June 8, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. Ohio—Cont'd

Allen, Ashtabula, Auglaize, Champaign, Columbiana, Darke, Fulton, Hancock, Hardin, Henry, Logan, Mahoning, Mercer, Portage, Preble, Putnam, Shelby, Summit, Trumbull, Union, Van Wert and Wyandot *12.5
Defiance and Paulding *12

Statewide Prices to Resellers & Agents

(These gasoline prices are on sliding scale based on actual spread between S. O. Ohio statewide tank car price and posted local s.s. price).

Including taxes	†Undivided Accounts	Divided Accounts	**Authorized Agents
Sohio X-70	16	16.5	16.5
Renown (3rd grade)	15.5	16	16

Note: On single deliveries of motor gasolines under 25 gallons, to t.w. consumers, s.s. price applies.

Sales tax: Ohio's 3% sales tax, effective Jan. 27, 1935, is added "where assessable, to regular posted prices." S. O. Ohio says.

*Kerosine prices include 1c state tax.

†Excluding authorized agents.

**Excluding 0.5c rental.

Discounts to contract tank wagon consumers only: on all motor gasolines, thru Ohio, effective Dec. 1, 1934, except counties mentioned hereafter, off posted t.w. price, on deliveries per month: 1,000 to 9,999 gals., 1.5c per gal.; 10,000 gals. and over, 2.5c. Under 1,000 gals., full t.w. price. Single deliveries of less than 25 gals., full s.s. price. Additional yearly discounts (less amount paid or credited to buyer on monthly purchases), off t.w. price: 12,000 to 119,999 gals., 1.5c; 120,000 gals. or over, 2.5c. Q. D. A. is off statewide schedule in the following counties: Allen, Auglaize, Columbiana, Darke, Defiance, Fulton, Hamilton, Hancock, Hardin, Henry, Jefferson, Logan, Lucas, Mahoning, Medina, Mercer, Putnam, Shelby, Trumbull, Union, Van Wert and Williams: for this information, write National Petroleum News.

Discounts on kerosine: to dealers and commercial consumers, 3c per gal. off t.w. price, any quantity.

S. O. Kentucky

Crown Gasoline

	T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Lexington, Ky	13	6	19	21	11
Louisville, Ky	13	6	19	21	10
Paducah, Ky	12	6	18	19	8.5
Covington, Ky	12.5	6	18.5	20.5	10.5
Jackson, Miss	13	7	20	22	*13
Vicksburg, Miss	12.5	7	19.5	21.5	*13
Birmingham, Ala	13	*8	21	23	11
Mobile, Ala	13	*8	21	23	10
Montgomery, Ala	13	*9	22	24	*11.5
Macon, Ga	13	7	20	22	*14.5
Atlanta, Ga	13.5	7	20.5	22.5	*13.5
Augusta, Ga	13	7	20	22	*13
Savannah, Ga	11.5	7	18.5	20.5	*13
Jacksonville, Fla	10	8	18	20	10
Miami, Fla	11.5	8	19.5	21.5	13.5
Tampa, Fla	10	8	18	20	12.5
Pensacola, Fla	12.5	*9	21.5	23.5	12

Kyso (Third Grade)

Lexington, Ky	11.5	6	17.5	19	....
Louisville, Ky	11.5	6	17.5	19	....
Paducah, Ky	10.5	6	16.5	17	....
Covington, Ky	11	6	17	18.5	....
Jackson, Miss	11	7	18	19	....
Vicksburg, Miss	9.5	7	16.5	17	....
Birmingham, Ala	11	*8	19	20	....
Mobile, Ala	11	*8	19	20	....
Montgomery, Ala	10.5	*9	19.5	20	....
Atlanta, Ga	10.5	7	17.5	18	....
Augusta, Ga	10	7	17	17.5	....
Macon, Ga	10	7	17	17.5	....
Pensacola, Fla	11	*9	20	21.5	....

Dealer Discount: off posted s.s. price, on Crown and Crown Ethyl gasolines to "undivided" dealers 4c; on Kyso, 3c. To "divided" dealers: Crown and Ethyl, 3.5c, and Kyso, 2.5c, all effective on or about Jan. 1, 1934.

Discounts to tank wagon consumers: all single deliveries of 50 gals. or less, get posted s.s. price; all single deliveries of 50 gals. or more, to be billed at posted t.w. price, plus following discounts, off posted t.w. price: Ethyl and Crown gasoline, 50 to 2,999 gals. monthly, 1.5c; Kyso, 1c; 3,000 to 24,999 gals., Ethyl and Crown, 2c; Kyso, 1.5c; 25,000 gals. or more, Ethyl and Crown, 3c; and Kyso, 2.5c.

Taxes: in the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Mississippi kerosine prices include 1c state tax. Montgomery kerosine price includes 1c city tax.

S. O. Indiana

Standard Red Crown Gasoline

	T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Chicago, Ill.	11.5	4	15.5	17.5	10.1
Decatur, Ill.	12	4	16	18	10.1
Joliet, Ill.	10.5	4	14.5	17.5	10.1
Peoria, Ill.	12	4	16	18	10.1
Quincy, Ill.	11.8	4	15.8	17.8	9.9
Indianapolis, Ind.	12.9	*5	17.9	19.9	‡14.6
Evansville, Ind.	12.7	*5	17.7	19.7	‡14.6
South Bend, Ind.	13.1	*5	18.1	20.1	‡15
Detroit, Mich.	10	4	14	16.5	8.8
Grand Rapids, Mich.	12.4	4	16.4	18.4	9.3
Saginaw, Mich.	12.6	4	16.6	18.6	10.1
Green Bay, Wisc.	12.7	5	17.7	19.7	10.8
Milwaukee, Wisc.	11.3	5	16.3	18.3	10.4
La Crosse, Wisc.	12.4	5	17.4	19.4	10.5
Minneapolis, Minn.	12.4	4	16.4	18.4	10.5
Duluth, Minn.	12.8	4	16.8	18.8	10.9
Mankato, Minn.	12.4	4	16.4	18.4	10.5
Des Moines, Iowa	11.8	4	15.8	**18.8	9.9
Sioux City, Iowa	12	4	16	**18	10.1
Davenport, Iowa	12	4	16	**18	10.1
Mason City, Iowa	12.2	4	16.2	**18.2	10.3
St. Louis, Mo.	11.7	†4	15.7	17.7	9.8
Kansas City, Mo.	11.4	†4	15.4	17.4	8
St. Joseph, Mo.	11.4	†4	15.4	17.4	9.5
Fargo, N. D.	13.4	4	17.4	19.4	11.5
Minot, N. Dak.	14.6	4	18.6	20.6	12.7
Huron, S. Dak.	12.9	*5	17.9	19.9	11
Wichita, Kans.	10.9	4	14.9	16.9	7.1

Note: Kerosine s.s. prices are generally 3c above normal t.w. price.

Stanolind Gasoline (Third Grade)

Stanolind normal prices are 1c under normal Red Crown prices, thru territory. Among subnormal points are the following:

Decatur, Ill.	11	4	15	16.5	....
Evansville, Ind.	11.7	*5	16.7	18.2	....
Indianapolis, Ind.	11.9	*5	16.9	18.4	....
Des Moines, Iowa	9.1	4	13.1	**17.8	....
St. Louis, Mo	10.7	†4	14.7	14.7	....
Detroit, Mich.	8.5	4	12.5	15	....
Milwaukee, Wis.	9.8	5	14.8	16.3	....
Huron, S. D.	11.9	*5	16.9	18.9	....
Wichita, Kans.	8	4	12	14.4	....
Minneapolis, Minn.	11.4	4	15.4	15.4	....

†St. Louis, Kansas City and St. Joseph prices include 1c city tax. ‡Includes 4c state tax.

*South Dakota gasoline and kerosine prices include 0.1c for sales tax. Indiana t.w. and s.s. gasoline prices include 0.2c for chain store tax.

**Service station prices for gasoline at Iowa points represent the opinion of National Petroleum News as to prices prevailing at the majority of stations.

Discounts to dealers: Effective Dec. 1, 1934, thru territory, except Michigan effective Apr. 1, 1935, and except Chicago division and Iowa, maximum discounts to controlled and uncontrolled undivided gasoline accounts, off s.s. price at normal points: Ethyl and Red Crown gasoline, 3.5c; Stanolind 2.5c; in Chicago, effective July 1, 1935, Ethyl and Red Crown, 4c; Stanolind, 3c. Divided gasoline accounts thru territory, get 0.5c less per gallon. In case of lease and agency and AAA accounts, the above discounts include the 0.5c per gal. rental allowance. In Iowa, normal dealer prices are 1.5c below normal t.w. price for first and second grade gasolines, and 0.5c under normal t.w. for third grade.

Discounts to commercial consumers: Effective Jan. 1, 1935, thru territory, except Michigan effective Feb. 1, on purchases per month, discount off t.w. price; all gasolines, 25 to 1,000 gals., at t.w. price; 1,000 gals. or more, 1.5c off t.w. on Ethyl and Red Crown, and 0.5c on Stanolind. Purchases of less than 25 gals. get regular s.s. price.

S. O. Nebraska

Standard Red Crown Gasoline

Omaha, Neb.	12.4	6	18.4	20.4	10.4
McCook, Neb.	13.1	6	19.1	21.1	11.1
Norfolk, Neb.	12.8	6	18.8	20.8	10.8
North Platte, Neb.	13.2	6	19.2	21.2	11.2
Scottsbluff, Neb.	13.9	6	19.9	21.9	11.9

Reliance Gasoline (Third Grade)

Omaha, Neb.	11	6	17	17	....
McCook, Neb.	11.6	6	17.6	17.9	....
Norfolk, Neb.	11.8	6	17.8	19.8	....
North Platte, Neb.	12.2	6	18.2	20.2	....
Scottsbluff, Neb.	12.9	6	18.9	20.9	....

Discount to dealers: where service station gasoline prices are normal, resellers' allowance off service station prices are (*Maximum* over-all, including rent) as follows: Reliance 2½c; Standard Red Crown, and Solite with Ethyl 3½c. Where service station gasoline prices are below normal, resellers' allowances are reduced one-half of the amount below normal, down to the following (*Minimum* over-all including rent): Reliance, 2c, Standard Red Crown and Solite with Ethyl, 3c.

Discounts to consumers: for tank wagon deliveries covered only by Standard Commercial Consumer Contract, effective January 1, 1935.

S. O. Louisiana

Essolene

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Little Rock, Ark.	8	10.5	7.5	21.5	11.5
Alexandria, La.	8	10.5	*8	22	*11
Baton Rouge, La.	8	10.5	*7	21	*11.5
New Orleans, La.	7.25	9.5	*9	22	*12
Lake Charles, La.	8.5	11	*8	22.5	11
Shreveport, La.	7.5	10	*7	20.5	10
Lafayette, La.	8.5	11	*8	22.5	12.5
Bristol, Tenn.	9.5	10.75	8	21.5	14.5
Chattanooga, Tenn.	10	12.5	8	24	11.5
Knoxville, Tenn.	10.5	13	8	24.5	14
Memphis, Tenn.	8.5	11	8	22.5	11
Nashville, Tenn.	9.5	12	8	23.5	10

*Baton Rouge and Shreveport gasoline tax includes 5c state tax, 1c federal tax, and 1c parish tax. Alexander, Lake Charles and Lafayette, 2c parish tax. New Orleans, 3c parish tax. Louisiana kerosine prices include 1c state tax.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Price basis to commercial consumers: Effective Feb. 11, 1935, commercial consumers not under contract will be billed at 2.5c per gal. above posted bulk plant tank car price at time and place of delivery in lots of 50 gals or more at one time. Contract customers will be billed at following differentials over tank car price, on yearly purchases: up to 35,999 gals., 2.5c over tank car price; 36,000 to 119,999 gals., 2c over; 120,000 to 239,999 gals., 1.5c; 240,000 to 479,999 gals., 1c; 480,000 gals. and over, 0.5c.

On single deliveries to all classes of commercial consumers, of less than 50 gals., s.s. price at time and place of delivery applies.

Magnolia Petroleum

Mobilgas

	T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Muskogee, Okla.	10	5	15	19	8
Oklahoma City	10	5	15	19	8
Tulsa, Okla.	10	5	15	19	8
Fort Smith, Ark.	10.5	5	15.5	19	8
Little Rock, Ark.	10.5	7.5	18	21.5	9.5
Texarkana, Ark.	9.5	5	14.5	18.5	8.5
Dallas, Tex.	9	5	14	18	8.5
Ft. Worth, Tex.	9	5	14	18	8.5
Houston, Tex.	9	5	14	18	8.5
San Antonio, Tex.	9	5	14	18	8.5
El Paso, Tex.	10	5	15	19	8
Roswell, N. M.	11.5	††6.5	18	22	10
Santa Fe, N. M.	12.5	**7	19.5	23.5	12

Metro Gasoline (Third Grade)

Muskogee, Okla.	7	5	12	14	....
Oklahoma City	8	5	13	16	....
Tulsa, Okla.	8	5	13	13	....
Ft. Smith, Ark.	10.5	5	15.5	15	....
Little Rock, Ark.	10.5	7.5	18	18.5	....
Texarkana, Ark.	7.5	5	12.5	14	....
Dallas, Tex.	7	5	12	14	....
Ft. Worth, Tex.	7	5	12	14	....
Houston, Tex.	8	5	13	16	....
San Antonio, Tex.	8	5	13	16	....
El Paso, Tex.	8.5	5	13.5	16	....
Roswell, N. M.	8	††6.5	14.5	17.5	....
Santa Fe, N. M.	9	**7	16	19	....

*In Texarkana, 4c Texas tax applies; outside Texarkana, 6.5c Arkansas tax applies.

†In Fort Smith, 4c Oklahoma tax applies outside Fort Smith, 6.5c Arkansas tax applies.

**Includes 1c city tax.

††Includes 0.5c city tax

Note: *Price basis to dealers* off s.s. price in t.w., bulk or bbl. deliveries, on Mobilgas and Ethyl, normally: to 100% dealers, 4c; to divided dealers, 3.5c, except Texas no discount. On Metro gasoline in Texas, Oklahoma and New Mexico: to 100% dealers, 3c; to divided dealers, 2.5c, except Texas no discount. On Metro, in Arkansas and Louisiana: to 100% dealers, 3.25c.

Price basis to consumers: Thru Texas, effective Jan. 1 1936, New Mexico, effective Jan. 18, and Oklahoma, effective Feb. 20, all grades of gasoline invoiced on the same graduated scale as now allowed 100% dealers, which see in above paragraph. Thru Arkansas and Louisiana, all grades gasoline invoiced at consumer's t.w. price, which on Mobilgas and Ethyl, normally is 3.5c less than s.s. price, less following contract quantity discounts at end of month, on all three grades, on monthly purchases: 3,001 to 10,000 gals., 0.5c; 10,001 to 20,000 gals., 1c; 20,001 to 40,000 gals., 1.5c; and 40,001 gals. and over, 2c. Metro invoiced at same price as Mobilgas.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect June 8, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

Continental Oil

Conoco Bronze Gasoline

	T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Denver, Colo	14	5	19	21	11
Pueblo, Colo	14	5	19	21	13
Grand Junction, Col.	16	5	21.5	23.5	15
Casper, Wyo.	14.5	5	19.5	21.5	11.5
Cheyenne, Wyo.	14.5	5	19.5	21.5	13
Billings, Mont.	16.5	6	22.5	24.5	14.5
Butte, Mont.	15	6	21	....	14.5
Great Falls, Mont.	16.5	6	22.5	24.5	14.5
Helena, Mont.	16.5	6	22.5	24.5	14.5
Salt Lake City, Utah.	16	5	21	23	16
Boise, Ida.	16.5	6	22.5	24.5	18
Twin Falls, Ida.	17	6	23	25	18
Albuquerque, N. M.	12	†6.5	18.5	20.5	13

Demand (Third Grade)

Denver, Colo	12	5	17	19	....
Cheyenne, Wyo.	12.5	5	17.5	19.5	....
Helena, Mont.	14.5	6	20.5	22.5	....
Salt Lake City, Utah.	14	5	19	21	....
Boise, Ida.	14.5	6	20.5	22.5	....
Albuquerque, N. M.	8.5	†6.5	15	17	....

†Includes city tax of 0.5c.

Discounts: effective March 1, 1934, on gasolines thru territory, except Montana, off s.s. price: to "undivided" dealers: Ethyl and Conoco Bronze, 4c; Demand, 3c; to "divided" dealers: Ethyl and Conoco Bronze, 3.5c; Demand, 2.5c. Thru Montana, effective March 24, 1936, on gasoline, off t.w. price to "undivided" dealers: Ethyl and Conoco Bronze, 2c; Demand, 1c; to "divided" dealers: Ethyl and Conoco Bronze, 1.5c; Demand 0.5c.

S. O. California

Standard Gasoline

San Francisco, Cal.	13	4	17	18	11.5
Los Angeles, Cal.	12.5	4	16.5	17.5	9
Fresno, Cal.	13.5	4	17.5	18.5	11
Phoenix, Ariz.	15	6	21	22	†16
Reno, Nev.	14.5	5	19.5	20.5	13
Portland, Ore.	13.5	6	19.5	20.5	13.5
Seattle, Wash.	13.5	6	19.5	20.5	13.5
Spokane, Wash.	16.5	6	22.5	23.5	16.5
Tacoma, Wash.	13.5	6	19.5	20.5	13.5

Flight Gasoline (Third Grade)

San Francisco, Cal.	11.5	4	15.5	16.5	....
Los Angeles, Cal.	11	4	15	16	....
Fresno, Cal.	12	4	16	17	....
Reno, Nev.	13	5	18	19	....
Phoenix, Ariz.	13.5	6	19.5	20.5	....
Portland, Ore.	12	6	18	19	....
Seattle, Wash.	12	6	18	19	....
Spokane, Wash.	15	6	21	22	....
Tacoma, Wash.	12	6	18	19	....

†Includes 5c state tax.

Discount to dealers: effective March 3, 1936, on gasoline, off t.w. price; on Stanavo Aviation, to 100% dealers, 2c; split dealers, 1c; on Standard Ethyl and Standard Gasoline, to 100% dealers, 3c; to split dealers, 2c; on Flight gasoline, both 100% and split dealers, 2c.

To commercial consumers: effective March 3, 1936, off tank wagon price: on single deliveries of 40 gallons and over, advance quantity discount from above prices extended at time of delivery on Stanavo Aviation and Flight Gasoline, 2c per gallon; Standard Ethyl and Standard Gasolines, 3c. S.s. schedule applies on single deliveries less than 40 gallons.

On kerosine in tank car, transport truck and trailer delivery, 3c off t.w. price; plant deliveries to jobbers, 2.5c below t.w.

Canada

Prices of Imperial Oil Ltd.

Per Imperial Gallon, which is 1.2 U. S. Gallons

Imperial Three Star Gasoline

	T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Hamilton, Ont.	15	6	21	23.5	17
Toronto, Ont.	15	6	21	23.5	17
Brandon, Man.	23.8	7	30.8	33.8	22.3
Winnipeg, Man.	22.2	7	29.2	32.2	20.7
Regina, Sask.	23.5	7	30.5	33.5	22
Saskatoon, Sask.	26.3	7	33.3	36.3	24.8
Edmonton, Alta.	25.7	7	32.7	35.7	24.2
Calgary, Alta.	23	7	30	33	21.5
Vancouver, B. C.	19	7	26	29	24
Montreal, Que.	13.5	6	19.5	22	17.5
St. John, N. B.	17	8	25	29	19.5
Halifax, N. S.	17	8	25	29	19.5

Discounts to dealers:

Maritime Provinces, 4c per gallon off s.s. price to all classes of dealers. Quebec, except Montreal City, Prairie Provinces and British Columbia, 3c to divided dealers, 4c to undivided dealers. Ontario and Montreal City, 2½c to divided dealers, 3½c to undivided dealers

Aviation Gasoline

Following are tank car and/or tank wagon prices of aviation gasoline in principal marketing territories (Stanavo aviation in all territories except Continental Oil and Magnolia Pet. Co.) Tax column includes 1c federal tax, and state tax; also municipal taxes as indicated in footnotes.

In Effect June 8, 1936

S. O. New Jersey

	Tank Car	T.W.
Bayonne, N. J.	10	12
Baltimore, Md.	10	12
Washington, D. C.	....	12.6
Richmond Va.	....	14.2
Greensboro, N. C.	....	14.7
Raleigh, N. C.	....	16.6
Charleston, W. Va.	....	14.2

Colonial Beacon Oil Co.

	T.W.
Brooklyn, N. Y.	12.8
Buffalo, N. Y.	14.1
Boston, Mass.	14.5

S. O. Pennsylvania

Philadelphia, Pa.	14.1
Pittsburgh, Pa.	14.9

S. O. Louisiana

New Orleans, La.	12.3
Shreveport, La.	12.6

Prices in above four territories do not include state or federal taxes. They are for 74 octane grade aviation gasoline. An 80 octane product generally brings 0.5c premium and an 87 octane product, 1.5c premium over the 74 octane grade.

Note: S.s. prices in abovef our territories are generally 6c over t.w. prices. Above t.w. prices are net, with no discounts allowed for quantity purchases. T.w. prices are generally tank car price, plus freight, plus 2.5c per gal.

S. O. Ohio

Thru Ohio

	Consumer T.W.	Tax	Total Consumer T.W.
Stanavo Ethyl Aviation:			
73 octane	15.5	5	20.5
80 octane	16.5	5	21.5
87 octane	17.5	5	22.5

Discounts: For delivery on contract to hangar operators and resellers: 2c below commercial consumer posted t.w. price.

S. O. Indiana

Chicago, Ill.	15	4	19
Indianapolis, Ind.	15.9	5	20.9
Detroit, Mich.	16.5	4	20.5
Milwaukee, Wisc.	15.3	5	20.3
Minneapolis, Minn.	15.4	4	19.4
St. Louis, Mo.	13.7	*4	17.7
Kansas City, Mo.	14.4	*4	18.4
Fargo, N. D.	16.4	4	20.4
Huron, S. D.	15.9	5	20.9
Wichita, Kans.	13.9	4	17.9

*Includes 1c city tax.
**Includes 0.1c to cover sales tax.

Magnolia Petroleum

Dallas, Tex.	12	5	17

Humble Oil & Refining Co.

	Tank Car
Baytown, Tex. (exclusive of taxes)	8.5

Continental Oil Co.

	T.W.	Tax	Total T.W.
Denver, Colo.	17	5	22
Cheyenne, Wyo.	17.5	5	22.5
Helena, Mont.	19.5	6	25.5
Salt Lake City, Utah.	19	5	24
Albuquerque, N. M.	15	*6.5	21.5

*Includes city tax of 0.5c.

S. O. California

Phoenix, Ariz.	16	6	22
Los Angeles, Cal.	13.5	4	17.5
San Francisco, Cal.	14	4	18
Reno, Nev.	15.5	5	20.5
Portland, Ore.	14.5	6	20.5
Seattle, Wash.	14.5	6	20.5
Spokane, Wash.	17.5	6	23.5

Note: For discounts, etc., see note under Standard and Flight gasoline above.

Naphtha (In Tank Wagon)

In Effect June 8, 1936

(Net price in Tank Wagon; in Cents per Gallon)

	Mineral Spirits	V.M.&P. Naphtha
S. O. New Jersey		
Baltimore, Md.	14	15.5
Newark, N. J.	12.5	14.5
Washington, D. C.	14	*17.5

*Steel bbls. only.

Socony-Vacuum Oil Co.		
Buffalo, N. Y.	11.5	12.5
New York City	10.5	11.5
Rochester, N. Y.	12	....
Syracuse, N. Y.	14	....
Boston, Mass.	13	13.5
Bridgeport, Conn.	13	13.5
Providence, R. I.	13	14
Atlantic Refining Co.		
Philadelphia, Pa.	11.5	12.5
Lancaster, Pa.	13	14
Pittsburgh, Pa.	14.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V. M. & P. Naphtha apply also to Light Cleaners Naphtha. 2c off above t.w. prices to large buyers in some instances.

	S. R. Solvent	V.M.&P. Naphtha
S. O. Ohio		
Thru Ohio	14	13.75

Note: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices.

	Mineral Spirits	V.M.&P. Naphtha	Stoddard Solvent
S. O. Indiana			
Chicago, Ill.	16.2	16.5	14
Detroit, Mich.	17.9	19	18
Kansas City, Mo.	13.9	14.9	13.9
St. Louis, Mo.	14.2	15	13.5
Milwaukee, Wis.	18.8	19.8	18.8
Minneapolis, Minn.	17.9	18.9	16.4

Note: Prices for V.M.&P. apply also to Light Cleaners Naphtha. All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F.o.b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M. & P. Naphtha	Solvent
Baltimore	10	9.5
New York Harbor	10	9
Philadelphia district	10	9.5
Providence	10	9.5
Ohio points, delivered	9.25	*9.5

*This is on S.R. solvent.

Note: In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P.; on Varnolene and Sohio Solvent, prices are 0.5c less than on V.M.&P.

Latest Changes

From June 2 to June 8 inclusive. Dates and amounts of changes shown. See table for full current prices. Changes are on gasoline unless kerosine is indicated.

S. O. New Jersey—Essolene:

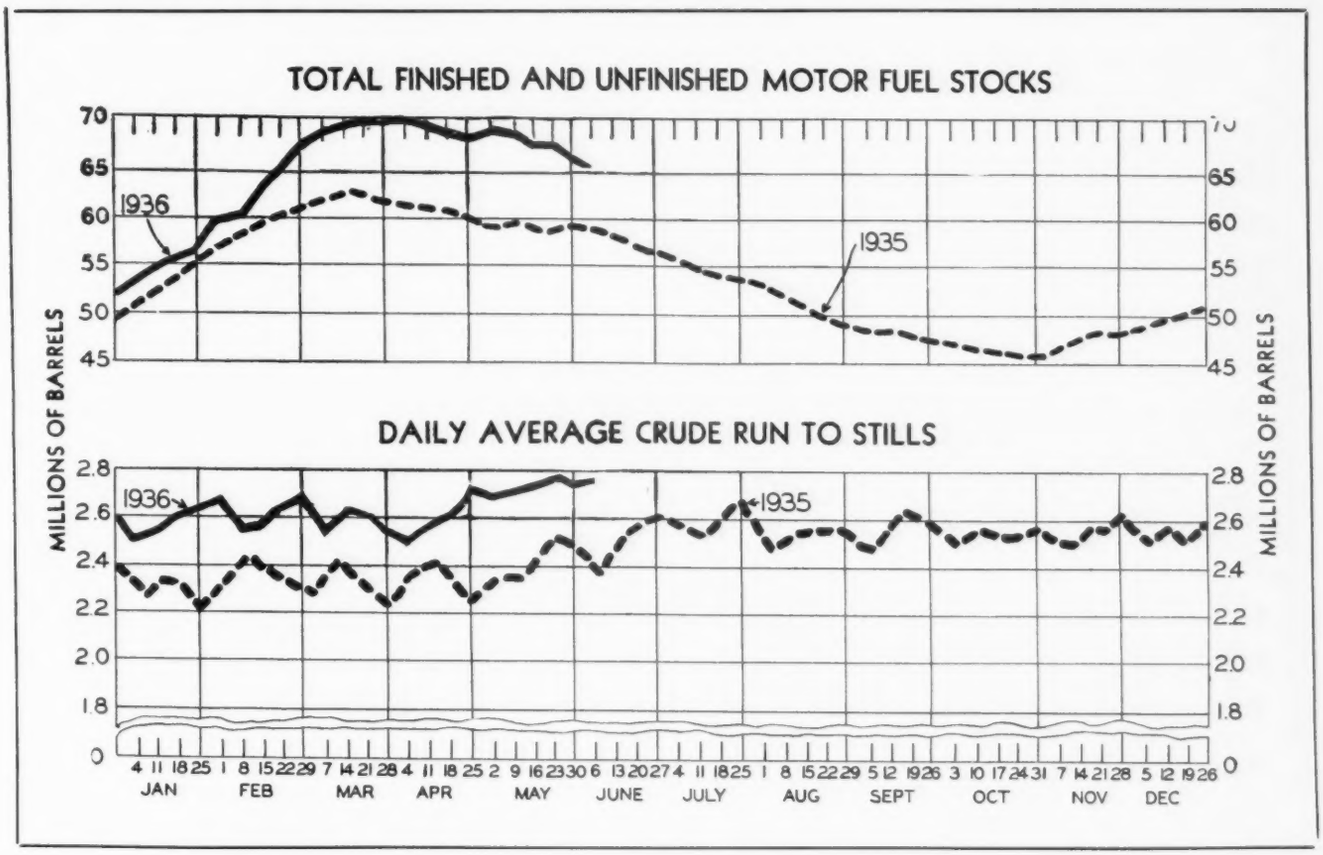
Atlantic City, dealer t. w. and s. s. cut 0.3c, June 3.

S. O. Ohio—X-70 and Renown:

Cut 1c, thru Jefferson county, June 4.

(*Continued on page* 116)

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.


TOTAL FINISHED AND UNFINISHED MOTOR FUEL STOCKS
MILLIONS OF BARRELS
70
65
60
55
50
45
1936
1935
DAILY AVERAGE CRUDE RUN TO STILLS
MILLIONS OF BARRELS
2.8
2.6
2.4
2.2
2.0
1.8
0
1936
1935
4 11 18 25 1 8 15 22 29 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 4 11 18 25 1 8 15 22 29 5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Motor Fuel Stocks Lowered 335,000 Barrels

(By Telegraph)

NEW YORK, June 9

A FURTHER decline of 335,000 barrels in total motor fuel stocks the week ended June 6 was reported to the American Petroleum Institute by 89.6 per cent of the country's refining plants. They totaled 65,907,000 on June 6 and followed a decrease of 1,380,000 barrels during the previous week.

The largest decline was in refinery stocks which were lowered 974,000 barrels, to 37,914,000 barrels. In-transit and terminal stocks of motor fuel increased 615,000 barrels, to 21,316,000 barrels and stocks of unfinished gasoline increased 24,000 barrels, to 6,677,000 barrels.

Crude runs to stills showed only a slight increase the past week. They were at the rate of 2,757,000 barrels daily average, an increase of 3000 barrels. These runs had been lowered 43,000 barrels the previous week.

Among the districts showing the largest changes in refinery runs were East Coast and Indiana-Illinois-Kentucky, which increased runs 21,000 barrels and 22,000 barrels respectively. Inland Texas plants lowered their runs 13,000 barrels, Texas Gulf lowered 11,000 barrels, and North Louisiana-Arkansas lowered 14,000 barrels.

The largest decrease in stocks of motor fuel was in the Indiana-Illinois-Kentucky district. Stocks there were down 340,000 barrels. Stocks declined also in the Oklahoma-Kansas-Missouri district 160,000 barrels and in the Texas Gulf 133,000 barrels. More than 100,000 barrel increases in motor fuel stocks were reported by Appalachian, Louisiana Gulf and California refining districts.

CURRENT REFINERY OPERATIONS

Districts.	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels) Total Finished and Unfinished Motor Fuel*		Total Finished and Unfinished Motor Fuel*		Gas & Fuel Oil	Gas & Fuel Oil	Cracked Gasoline Production % Total Capacity Reporting	Daily Av. Production (Barrels) Week Ended	
		June 6	May 30	June 6	May 30	June 6	May 30	June 6	May 30	June 6	May 30		June 6	May 30
East Coast	100.0	540,000	519,000	88.2	84.8	19,743	19,663	8,895	8,654	100.0	103,000	106,000		
Appalachian	94.8	100,000	103,000	68.5	70.5	2,709	2,600	471	505	98.7	20,000	21,000		
Ind., Ill., Ky.	95.9	397,000	375,000	93.6	88.4	10,231	10,571	3,762	3,547	99.7	135,000	133,000		
Okla., Kans., Mo.	84.8	302,000	298,000	78.6	77.6	7,174	7,334	3,068	2,932	89.1	61,000	69,000		
Inland Texas	48.5	98,000	111,000	61.3	69.4	1,511	1,584	1,698	1,696	70.9	24,000	29,000		
Texas Gulf	96.8	609,000	620,000	92.6	94.2	7,559	7,692	7,362	7,072	78.5	155,000	148,000		
La. Gulf	96.4	124,000	121,000	76.1	74.2	1,571	1,469	2,024	2,009	96.1	24,000	28,000		
No. La., Ark.	90.0	35,000	49,000	48.6	68.1	142	145	107	101	95.7	8,000	8,000		
Rocky Mt.	61.9	41,000	50,000	68.3	83.3	1,461	1,508	730	753	84.8	10,000	14,000		
California	92.6	511,000	508,000	64.8	64.4	13,506	13,376	71,636	71,678	100.0	74,000	65,000		
Total Reporting	89.6	2,757,000	2,754,000	79.5	79.4	65,907	66,242	99,963	99,247	95.9	614,000	621,000		
Estimated U. S. Total (Bur. of Mines Basis.)		2,950,000	2,935,000			70,639	70,974**	102,904	102,188**		655,000	665,000		

*Includes stocks at refineries, in bulk terminals, pipe lines and in transit. **Revised.

HEAVY FUEL *Prices* STEADY

FUEL oil markets generally were quiet the first week of June. Most of the trade interest centered on industrial fuels. There was little or no movement of the lighter grades.

Demand for industrial fuels was holding up well in most areas. Offerings were limited, and sellers reported no difficulty in obtaining asked prices. The outlook for industrial fuels appeared favorable as most indications point to maintenance of present levels of industrial operations.

There was some buying of the light fuels by distributors with storage facilities. Many traders, however, believed light oil prices were too high to attract much storage buying. Most buyers expect a larger discount than they are currently offered to make it profitable to store oil over the summer months.

* * *

NEW YORK, June 6.—Fuel oil trading in the eastern seaboard markets was confined pretty much to the heavy grades in the week ended June 6. Light fuels, used largely as domestic heating oils in the eastern areas, remained quiet at least from the standpoint of the spot market.

There appeared to be no letup in industrial demand for heavy fuels which has been fairly consistent for several months now. Offerings were limited and suppliers reported they were experiencing no difficulty in getting their asked prices. The bulk of movement was against contracts. Open market offerings were scarce, and when made, were quickly taken up by suppliers who were short of their contract commitments.

Interest in light fuels centered on contracts for the next heating season beginning Sept. 1. Contracts again will be based on the open market the same as the past season's contracts, according to reports of most suppliers. The policy of guaranteeing a margin under retail prices appears to have been discarded quite generally.

Some shading of prices for No. 2 oil at New York harbor was reported the past week but the volume involved was not sufficient to be considered representative of the general market. Prices for other grades of light fuels were steady.

* * *

CHICAGO, June 6.—Fuel oils received the minimum amount of trade attention, and the maximum amount of price shading in the Mid-Western market the first week of June.

The in-between-season lull resulted in little buying of domestic heating oils.

Industrial buyers were quite active, however, sellers said, and demand from this quarter helped maintain a relatively stable balance between supply and demand. This was especially true of the heavy fuel oils.

* * *

TULSA, June 6.—Little of interest developed in the fuel oil market in the Mid-Continent the first week of June, and prices accordingly showed little fluctuation.

Buyers in East Texas reported a continued fair demand for various grades, but that buying was below levels expected when storage buying really gets under way. It was indicated in a few quarters that prices still were higher than the trade expects them to be when this storage buying gets under way.

Gas oil was in better demand, particularly in the Texas areas and in some quarters the material was scarcer than it had been for several weeks.

With refineries curtailing crude runs and the railroads taking sizable quantities, the heavier fuel oil market continued to hold its own in excellent shape.

FUEL OILS

Following are tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

Prices in Effect June 8, 1936

	No. 1	No. 2	No. 3	No. 4
S. O. New Jersey				
Newark, N. J.	7.25	6.50	6.50	6.50
Atlantic City, N. J.	8	6.5	6.5	6
Baltimore, Md.	8	6	6	5.5
Washington, D. C.	8.00	6.75	6.75	6.75
Discounts: At Newark and Atlantic City, purchasers taking 50,000 gals. get discount of 0.5c per gal.				
Socony-Vacuum Oil Co., Inc. (S. O. New York Division)				
New York City	7	6.50	6.50	6.00
Albany, N. Y.	7.75	6.50	6.50	6.25
Rochester, N. Y.	8.25	7.00	7.00	7.00
Boston, Mass.	7.5	6.50	6.50	6.50
Bangor, Me.	8	6.50	6.50	6.50
Manchester, N. H.	8	7.00	7.00	7.00
Burlington, Vt.	8.75	7.00	7.00	7.00
New Haven, Conn.	7.5	6.25	6.25	6.25
Providence, R. I.	7.00	6.50	6.50	6.00
Discounts: At New York City, consumers taking 10,000 to 50,000 gals., get 0.25c per gal. discount when minimum amount has been reached; above 50,000 gals., 0.5c.				
Atlantic Refining				
Philadelphia, Pa.	7.50	6.25	6.25	5.75
Allentown, Pa.	8	6.75	6.75	6.75
Wilmington, Del.	7.50	6.25	6.25	5.75
Springfield, Mass.	7.50	7	....	7
Worcester, Mass.	7.75	7.25	....	7.25
Hartford, Conn.	7	7	....	7
S. O. Ohio				
*Ohio Statewide	8	7.50	7	6.75

Note: S. O. Ohio prices are for hose dumps; bucket dumps are 0.5c per gallon higher.

Except Cleveland Division and City of Toledo. In Cleveland Division (Cuyahoga, Lake and Geauga counties), No. 1 price is same as statewide; Nos. 2, 3 and 4 are 0.5c higher; No. 5 is priced 0.25c lower than No. 4. In Toledo No. 2 is 0.5c lower than statewide, others same.

S. O. Indiana

Stanolex Fuel and Furnace Oils

	No. 1 Fuel	No. 3 Furnace
Chicago	6.5	6.5
Indianapolis	*12.4	*11.7
Detroit	6.8	6.8
Milwaukee	8	7
Minneapolis	8.2	7.2
Sioux City	7.8	6.8
St. Louis	7.5	6.8
Kansas City	6.6	5.9

*Includes state tax of 4c.

Note: Small-lot deliveries of light fuel oils range from 0.5c to 1.5c higher than above quotations.

TANK WAGON CHANGES

(*Continued from page* 114)

Kerosine:

Cut 0.5c, Fulton county, June 6.

S. O. Indiana—All gasoline:

Cut 1c, lower peninsula of Michigan, June 5. Detroit not affected.

Magnolia Petroleum—Mobilgas:

Ft. Worth, t.w. up 0.5c, s.s. up 1c, June 2.

Metro:

Dallas, t.w. cut 0.5c, s.s. cut 1c, June 6.

El Paso, t.w. up 0.5c, s.s. up 1c, June 2.

Corrections

Notation of amount of change and dates not previously shown in table. Table in this issue is corrected to show these changes. Changes are on gasoline unless kerosine is indicated.

S. O. New York—Mobilgas:

Burlington s. s. cut 0.5c, May 20.

Atlantic Refining—White Flash Plus:

Hartford, cut 1c, May 14.

Wilmington, Del. up 0.5c, May 28.

S. O. Ohio—Renown:

Cut 1c, thru Darke, Greene, Miami, Montgomery and Preble counties, to 16.5c and 18.5c, June 1, instead of to 16c and 17c, as reported on page 53 of June 3 issue.

Magnolia Petroleum—Aviation:

Dallas up 0.5c, May 31.

Metro:

El Paso t. w. up 1.5c, to 13c, May 21, instead of to 12c, as reported on page 81 of May 27 issue.

Dallas s. s. price was published thru typographical error at 13c on page 52 of June 3 issue. It should have been 15c, effective May 31.

S. O. Ohio Cuts T. C. Kerosine

CLEVELAND, June 8.—Effective June 5 Standard Oil Co. of Ohio reduced its tank car prices on kerosine and tractor distillate 0.125 cent per gallon.

Following the policy put into effect March 30, the Standard is quoting kerosine on an f.o.b. Toledo, O., basis, and basing its quotations on prices quoted in Platt's Oilgram under "other districts" for Pennsylvania 45 water white. Its new kerosine prices range from 5.5 to 5.875 cents, f.o.b. Toledo.

SEABOARD MARKETS, EXPORT AND COASTWISE

Prices do not include Federal tax. Where $ mark is shown, prices are per barrel of 42 U. S. gallons

Eastern Domestic

(Prices in cents per gallon tank car lots, unless otherwise noted, f.o.b. refinery or seaboard terminal, representing majority of sales and quotations to jobbers and/or consumers. Florida and S. Carolina inspection tax not included.)

*Motor Gasoline

Prices June 8	60-64 Octane	65 Octane and Above
New York harbor	6.75 – 7.00	7.00 – 7.25
New York harbor, barges	6.50 – 6.75	6.75 – 7.00
Philadelphia district	6.75	7.00
Baltimore district	6.75	7.00
Norfolk district	6.75	7.00
Wilmington, N. C. district	6.75	7.00
Charleston, S. C., district	6.75	7.00
Savannah district	6.75	7.00 – 7.25
Jacksonville district	6.75	7.00 – 7.25
Portland district	7.25	7.50
Boston district	6.75 – 7.00	7.00 – 7.25
Boston district, barges	6.50 – 6.75	6.75 – 7.00
Providence district	7.00	7.25
Providence district, barges	6.75	7.00

*Due to lack of companies offering U. S. Motor gasoline, 59 octane and below in the open market, prices for this grade are discontinued. Quotations nominally are 0.25c below those for 60-64 octane grade.

Water White Kerosine

Prices June 8			
New York harbor	4.625	Savannah district	5.50 – 5.75
N. Y. harbor, barges	4.50	Jacksonville district	5.50 – 5.75
Philadelphia district	4.875 – 5.00	Portland district	5.50
Baltimore district	5.00	Boston district	5.00
Norfolk district	5.00	Boston dist., barges	4.875
Wilmington, N. C.	5.00	Providence district	5.00
Charleston, S. C. dist.	5.25	Providence, barges	4.875

*Fuel Oils

Prices June 8	New York harbor	New York harbor, barges	Philadelphia district
No. 1	4.625	4.50	4.875– 5.00
No. 2	4.25	4.125	4.25 – 4.50
No. 3	4.25	4.125	4.25 – 4.50
No. 4	3.75	3.625	4.00
No. 5 (per barrel)	$1.25 –$1.35	.....	$1.25
No. 6 (per barrel)	$1.05	.....	$1.05

	Baltimore district	Boston district
No. 1	5.00	5.00
No. 2	4.25 – 4.50	4.25
No. 3	4.25 – 4.50	4.25
No. 4	4.00 – 4.25	4.25
No. 5 (per barrel)	$1.25	$1.35
No. 6 (per barrel)	$1.05	$1.05

	Boston dist., barges	Providence district	Providence dist., barges
No. 1	4.875	5.00	4.875
No. 2	4.125	4.25	4.125
No. 3	4.125	4.25	4.125
No. 4	4.125	3.75	3.625

*Fuel oils meet specifications of U. S. Commercial Standards CS12-35.

	Bunker Oil Grade C Per Barrel	Diesel Oil Ships' Bunkers Per Barrel	Gas Oil 28-34 Gravity Per gallon	Diesel Oil Shore Plants Per gallon
New York harbor	*$1.05	*$1.65	4.25	4.25
Philadelphia dist.	*$1.05	*$1.65	4.50	....
Baltimore district	*$1.05	*$1.65	4.50	....
Norfolk district	*$1.05	*$1.65	4.50	....
Charleston district	$1.00	$1.65	....	....
Savannah district	$1.00	$1.89	....	4.75
Jacksonville dist.	$1.00	$1.995	....	4.75
Tampa district	$1.00	$1.995	....	....
Portland district	$1.15	$1.75	....	....
Boston district	$1.05	*$1.65	....	....
Providence district	$1.05	$1.65	....	....

*Lighterage for bunker oil, 5c per bbl. additional; for Diesel oil, 6.5c pe bbl. additional.

Pacific Export

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

Prices—	June 8	June 1	May 25
53-55 U. S. Motor	4.75 – 5.25	5.00 – 5.50	5.00 – 5.50
400 e.p. blend 65 Octane and above	5.00 – 6.00	5.25 – 6.00	5.25 – 6.00
38-40 w.w. kerosine, 150 fire point	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00
41-43 w.w. kerosine	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
44 water white kerosine	5.00	5.00	5.00
Prime wh. kerosine	3.25 – 4.25	3.00 – 4.25	3.00 – 4.25
In Cargo lots, per barrel:			
Diesel fuel oil, above 23.9°	$1.05 –$1.25	$1.05 –$1.25	$1.05 –$1.20
Diesel fuel oil, under 23.9°	$1.00 –$1.10	$1.00 –$1.10	$1.00 –$1.10
30-34 gas oil	$0.90 –$1.10	$0.90 –$1.10	$0.90 –$1.10
Grade C fuel oil	$0.75 –$0.85	$0.75 –$0.85	$0.75 –$0.85

Pacific Export (cont'd)	June 8	June 1	May 25
In Ships' Bunkers, or deep tank lots, per barrel:			
Cased Goods:			
Diesel fuel oil, above 23.9 gravity	$1.125–$1.25	$1.125–$1.25	$1.125–$1.25
Diesel, under 23.9 gravity	$1.025–$1.15	$1.025–$1.15	$1.025–$1.15
Grade C fuel oil	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95
Cased Goods:			
Gasoline, U. S. Motor	$1.35 –$1.50	$1.35 –$1.50	$1.35 –$1.50
Gasoline, 400 e.p. blend	$1.50 –$1.65	$1.50 –$1.65	$1.50 –$1.65
38-40 w.w. kerosine, 150 fire point	$1.20 –$1.30	$1.20 –$1.30	$1.20 –$1.30
Kerosine, prime white	$1.15 –$1.25	$1.15 –$1.25	$1.15 –$1.25

New York Export

(Prices in cents per gallon in barrels, F.a.s. New York)

Cylinder Oils (Pennsylvania Products)

Bright stock:			
Light, 25 pour point	28.00 –28.50	28.00 –28.50	28.00 –28.50
Dark, 25 pour point	27.50 –28.00	27.50 –28.00	27.50 –28.00
Neutral oil:			
200 3 color, 25 pour point	27.50	27.50	27.50
150 3 color, 25 pour point	24.00	24.00	24.00
600 Warren E filtered	22.00	22.00	22.00
600 stm. rfd. unfiltered	20.00	20.00	20.00
650 stm. rfd. unfiltered	21.00	21.00	21.00
600 flash, steam refined	22.00	22.00	22.00
630 flash, steam refined	24.50	24.50	24.50

Wax Domestic *and* Export

(Prices in cents per pound. Tests made by A. S. T. M. methods. Melting points shown below, however, are A. M. P., 3° higher than A. S. T. M. (E. M. P.) melting points. Export prices are f.a.s. carload lots. Domestic prices are f.o.b. refineries in New York and New Orleans districts, in bags, carload lots, with 0.2c discount allowed for shipment in bulk.)

	New York		New Orleans	
Prices—June 8	*Domestic*	*Export*	*Domestic*	*Export*
124-6 Y.C. scale	2.30 – 2.40	2.30 – 2.40	2.30 – 2.40	2.30 – 2.40
122-4 W.C. scale	2.25 – 2.35	2.25 – 2.35	2.25 – 2.35	2.25 – 2.35
124-6 W.C. scale	2.30 – 2.40	2.30 – 2.40	2.30 – 2.40	2.30 – 2.40
123-5 Fully refined	4.45	4.125	4.45	4.125
125-7 Fully refined	4.55	4.25	4.55	4.25
128-30 Fully refined	4.80	4.50	4.80	4.50
130-2 Fully refined	5.05	4.75	5.05	4.75
133-5 Fully refined	*5.35	5.25	*5.35	5.25
135-7 Fully refined	*5.60	5.50	....	....

*Shipment either in bags or in bulk.

Gulf Coast

(Prices are f.o.b. ship at Gulf oil terminals representing traders' opinions except prices specified to the contrary. Prices cover bulk shipments of 20,000 barrels or more, unless otherwise noted.)

Motor Gasoline

For Domestic Shipment

Prices—	June 8	June 1	May 25
59 octane and below	5.625– 5.75	5.625– 5.75	5.625– 5.75
60-64 octane number	6.00	6.00	6.00
65 octane and above	6.125– 6.25	6.125– 6.25	6.125– 6.25

Fuel Oils

No. 1 Fuel oil	3.75	3.75	3.75
No. 2 Fuel oil	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
No. 4 Fuel oil	3.125	3.125	3.125

*Sale only.

Kerosine

41-43 w.w.	3.75	3.75	3.75

Gasoline

For Export Shipment

U. S. Motor gasoline	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
60-62, 400 e.p. gasoline	5.375– 5.50	5.375– 5.50	5.375– 5.50
61-63, 390 e.p. gasoline	5.50	5.50	5.50
64-66, 375 e.p. gasoline	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75

Kerosine

44 water white	4.125– 4.25	4.125– 4.25	4.25
41-43 water white	3.75	3.75	3.75 – 3.875
41-43 prime white	3.75	3.75	3.75 – 3.875

(*Continued on next page*)

SEABOARD MARKETS, EXPORT AND COASTWISE

Prices do not include Federal tax. Where $ mark is shown, prices are per barrel of 42 U. S. gallons

(*Continued from preceding page*)

Gas and Bunker Oils

For Domestic and/or Export Shipment

Prices—	June 8	June 1	May 25
*26-30 translucent gas oil	3.125- 3.25	3.125- 3.25	3.125- 3.25
*30 plus translucent gas oil	3.125- 3.25	3.125- 3.25	3.125- 3.25
*30 plus transp. gas oil	3.25	3.25	3.25
Diesel Oil Ships' bunkers	$1.50	$1.50	$1.50
Grade C bunker oil, for ships' bunkers, per bbl.	†$0.90	†$0.90	†$0.90
Grade C bunker oil, per bbl. in cargoes	‡$0.82 -$0.85	‡$0.82 -$0.85	‡$0.82 -$0.85

*Less than ½ of 1% sulphur. †Lighterage 5c per bbl. additional.

Mexican Crude and Bunker Oils

(F.o.b. Steamer, Tampico)

Heavy Panuco crude taxes to be paid, per bbl.	$0.78 -$0.80	$0.78 -$0.80	$0.77 -$0.78
Grade C bunker oil, ships' bunkers, taxes paid, per bbl.	$0.90	$0.90	$0.90

Mid-Continent Lubricating Oils

(Prices in cents per gallon in bbls. f.a.s. Gulf terminals. In drums and new barrels, 0.5c to 1c higher per gal. in some instances.)

190-200 vis. D 210 brt. stk	26.50	26.50	26.50
150-160 vis. D. 210 brt. stk:			
0-10 pour point	23.50	23.50	23.50
10-25 pour point	23.00	23.00	23.00
25-40 pour point	22.50	22.50	22.50
150-160 vis. E 210 brt. stock	22.50	22.50	22.50
120 vis. D 210 bright stock	22.00	22.00	22.00
180 vis. No. 3 color neutral Oil:			
0-10 pour point	17.25 -17.50	17.25 -17.50	17.25 -17.50
15-30 pour point	16.25 -16.50	16.25 -16.50	16.25 -16.50
200 vis. No. 3 color neutral oil:			
0-10 pour point	17.75 -18.00	17.75 -18.00	17.75 -18.00
15-30 pour point	16.75 -17.00	16.75 -17.00	16.75 -17.00

Mid-Continent Lubricating Oils (Cont'd)

Prices—	June 8	June 1	May 25
600 s.r. olive green	12.50	12.50	12.50
600 s.r. dark green	11.00 -11.25	11.00 -11.25	11.00 -11.25
631 s.r.	18.00	18.00	18.00

South Texas Lubricating Oils

(Viscosity at 100° F., pour point 0. Tanker, f.o.b. Gulf oil terminals, for export shipment)

Vis. Color			
Unfiltered Pale Oils:			
100 No. 3	5.25 - 5.50	5.25 - 5.50	5.25 - 5.50
200 No. 3	6.375- 7.00	6.375- 7.00	6.375- 7.00
300 No. 3	7.00 - 7.50	7.00 - 7.50	7.00 - 7.50
500 No. 3½	7.875- 8.50	7.875- 8.50	7.875- 8.50
750 No. 4	9.00 - 9.25	9.00 - 9.25	9.00 - 9.25
1200 No. 4	9.25 - 9.50	9.25 - 9.50	9.25 - 9.50
2000 No. 4	9.75 -10.25	9.75 -10.25	9.75 -10.25
Red Oils:			
100 No. 5-6	5.25 - 5.50	5.25 - 5.50	5.25 - 5.50
200 No. 5-6	6.125- 6.75	6.125- 6.75	6.125- 6.75
300 No. 5-6	6.75 - 7.00	6.75 - 7.00	6.75 - 7.00
500 No. 5-6	7.25 - 7.625	7.25 - 7.625	7.25 - 7.625
750 No. 5-6	9.00 - 9.25	9.00 - 9.25	9.00 - 9.25
1200 No. 5-6	9.25 - 9.50	9.25 - 9.50	9.25 - 9.50
2000 No. 5-6	9.75 -10.25	9.75 -10.25	9.75 -10.25

Note: Red oil prices shown above cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shipments per ton of 2240 pounds. British sterling: to U. S. ports, cents per barrel)

Rates—June 8	Crude &/or Fuel Last Paid	Crude &/or Fuel Owners Ask	Refined Oil &/or Spirits Last Paid	Refined Oil &/or Spirits Owners Ask
Calif. U.K. Cont.*	20/6	20/-21/	21/	21/-: /
Gulf-U.K. Cont.*	14/	14/6-15/	14/3	14/9-1 /6
Calif.-N. Atlantic (not E. of N. Y.)	.....	‡55c	42c	‡55-› c
Gulf-N. Atlantic** (not E. of N. Y.)	†19c	†19-20c	19c	18-19c

Note: Dirty boat quotations are enlarged to cover, "Fuel and Light Crude" quotations.

*Continental ports in range between Bordeaux and Hamburg, both inclusive.

**Venezuela loading same rate: Tampico 2c to 3c per bbl. additional.

†Rates for heavy crude or fuel 1c to 2c higher than for light crude.

‡Nominal.

California Market

(*Continued from page* 108)

of demand, quotations ranging from $0.85 to $1.05 a barrel. Fuel oils were irregular, with some distress product being offered at 77 cents a barrel at small refineries in the Basin area. The general range of prices, however, was from 60 to 75 cents in the San Joaquin Valley and from 75 to 80 cents a barrel at independent plants in the Basin.

Pacific Coast seaboard markets were without special feature, with movements chiefly under contract or to intercompany outlets. Shipments to Oriental ports were restricted by keen competition from Japanese, Russian and Roumanian suppliers. South American markets were adversely affected by exchange difficulties and the impossibility of establishing satisfactory credits. Some inquiries were reported for aviation gasoline destined to East African ports for the account of the Italian government.

Crude Price Changes

FINDLAY, O.—Effective June 5, The Ohio Oil Co. reduced Sunburst, Mont., crude 10 cents, to new price of $1.15 per barrel. Last previous change was a 5 cent advance Jan. 9 last.

His coverage is thorough

Wax

Prices Lower

NEW YORK, June 6.—A slight reaction in crude scale prices featured wax markets at New York and New Orleans the first week in June. Demand for both scale and the fully refined grades was moderately active with foreign buyers particularly showing more interest.

The setback experienced by scale prices, following the rallying market which had been under way since early in May, will be shortlived, according to the opinions of most traders. Offerings were well held in most quarters, with suppliers sending their scale to storage rather than accept the low bids made by buyers.

With a few more comparatively small distress lots out of the way, prices will resume their upward trend, it was believed. Sales of an accumulation of distress lots the past week at prices 0.05 cent lower, however, were sufficient to break the upward trend at least temporarily.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a.m. of dates as given.

Eastern Fields

Posted by Joseph Seep Purchasing Agency

(Effective Jan. 13, 1936)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$2.17
Penna. Grade Oil in Eureka Pipe Lines (West Virginia).....$2.12
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....$1.97
Corning Oil in Buckeye Pipe Lines (Ohio) $1.42

Posted by Other Companies

Tide Water Pipe Co., Ltd.
Bradford-Allegheny district (Penna. and N. Y.) (Effective Jan. 13, 1936)..$2.45
*The Pennzoil Co.: (Effective Jan. 13, 1936)
Penna. Grade Oil in National Transit Lines*.....$2.42
Ashland Oil & Transportation Co.:
Somerset Oil in Ashland Lines (Ky.): (Effective Jan. 9, 1936)
Big Sandy River.....$1.30
Kentucky River.....$1.38

*The Pennzoil Co. posts $2.42 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other lower districts range down to $2.37 per bbl. at well.

Michigan

Posted by Pure Oil Co.

Midland, Midland County (Jan. 14, 1936) $1.32

Posted by Simrall Pipe Line Corp.

(Effective Jan. 14, 1936)

West Branch and equal grades.....$1.16
Beaverton, Crystal, Greendale, Porter and equal grades.....$1.32

Central States Fields

Posted by Ohio Oil Co.

(Effective Jan. 9, 1936)

Illinois, Princeton, Western Kentucky..$1.23
(Effective Jan. 10, 1936)
Lima.....$1.25

Posted by Stoll Oil Refining Co.

(Effective Jan. 9, 1936)

Stoll Pipe Line Oil (Ky.).....$1.28

Canadian Fields

Posted by Imperial Oil Refineries, Ltd.

Western Ontario

(Effective Sept. 9, 1933)

Petrolia.....$2.10
Oil Springs.....$2.17

Alberta—Turner Valley

(Prices f.o.b. field tankage)

(Effective Feb. 3, 1936)

Crude:		Naphtha:	
40-44.9	$1.55	†Clear	$2.70
45-49.9	2.12	†Discolored	2.46
50 and above	$2.32		

†Clear naphtha: 22 color; 10 lbs. vapor pressure, Reid method; 90% recovery; end point, 410°. Discolored naphtha: same specifications as for clear naphtha except color.

Mid-Continent

Posted by Stanolind Crude Oil Purchasing Co.

(Effective Jan. 9, 1936)

(In Oklahoma-Kansas)	(In North-North Central Texas)
Below 29 $0.94	$0.84
29-29.9 0.96	0.86
30-30.9 0.98	0.88
31-31.9 1.00	0.90
32-32.9 1.02	0.92
33-33.9 1.04	0.94
34-34.9 1.06	0.96
35-35.9 1.08	0.98
36-36.9 1.10	1.00
37-37.9 1.12	1.02
38-38.9 1.14	1.04
39-39.9 1.16	1.06
40 and above 1.18	1.08

Above Stanolind prices met as follows:

Jan. 9, by The Texas Co. in North and North Central Texas; Continental Oil in all three states.

Note: Stanolind prices in Okla.-Kans. are for quantities computed by 97% tank tables. In Texas, 99% tank tables are used, volume corrected to 60° F., and deduction for full b.s. & w. content

Posted by Carter Oil Co.

In Oklahoma

(Effective Jan. 9, 1936)

Below 25	$0.86	33-33.9	$1.04
25-25.9	0.88	34-34.9	1.06
26-26.9	0.90	35-35.9	1.08
27-27.9	0.92	36-36.9	1.10
28-28.9	0.94	37-37.9	1.12
29-29.9	0.96	38-38.9	1.14
30-30.9	0.98	39-39.9	1.16
31-31.9	1.00	40 and above	1.18
32-32.9	1.02		

Jan 9, Carter's Oklahoma gravity and price schedule met in Oklahoma-Kansas by Sinclair-Prairie, and Humble's West Central Texas schedule met in North and North Central Texas where Sinclair-Prairie buys. Same day, Shell Petroleum met Carter in full in Oklahoma-Kansas.

Posted by Magnolia Petroleum Co.

(Effective Jan. 9, 1936)

In Oklahoma, same schedule as Carter Oil, which see above, beginning with below 25, at $0.86 and ending with 40 & above, at $1.18.

In Texas: North and North Central, including Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden; and in Central Texas, including Mexia, Wortham, and Panola county, same gravity and price schedule as Humble in West Central Texas, which see below, beginning with below 29 at $0.84, and ending with 40 and above, at $1.08.

†***Posted by Humble Oil & Refining Co.***

Texas Fields

(**West Central Texas*)

(Effective Jan. 9, 1936)

Below 29	$0.84	35-35.9	$0.98
29-29.9	0.86	36-36.9	1.00
30-30.9	0.88	37-37.9	1.02
31-31.9	0.90	38-38.9	1.04
32-32.9	0.92	39-39.9	1.06
33-33.9	0.94	40 and above.	1.08
34-34.9	0.96		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young counties.

Shell Petroleum Corp., on Jan. 9, met Humble in Fisher county, except that Shell posts five lower grades, beginning with below 25 gravity at $0.76; 25-25.9, $0.78; 26-26.9, $0.80; 27-27.9, $0.82; and 28-28.9, $0.84; rest of schedule same as Humble's in West Central Texas.

†Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

**East Central Texas*

(Effective Jan. 9, 1936)

Below 29	$0.91	35-35.9	$1.05
29-29.9	0.93	36-36.9	1.07
30-30.9	0.95	37-37.9	1.09
31-31.9	0.97	38-38.9	1.11
32-32.9	0.99	39-39.9	1.13
33-33.9	1.01	40 and above.	1.15
34-34.9	1.03		

*Including Anderson, Cherokee, Limestone Navarro and Van Zandt counties.

Stanolind Oil & Gas Co., Jan. 20, posted in Marion County (East Central Texas), below 29 oil at $0.86, plus 2c differential, to 40 and above at $1.10.

Jan. 9, Sinclair-Prairie met Humble's prices in Mexia.

Panhandle Texas

Posted by Humble Oil & Refining Co.

(Effective Jan. 9, 1936)

	Gray County	Carson-Hutchinson
Below 35	$0.86	$0.81
35-35.9	0.88	0.83
36-36.9	0.90	0.85
37-37.9	0.92	0.87
38-38.9	0.94	0.89
39-39.9	0.96	0.91
40 & above	0.98	0.93

Jan. 9, above prices met by Sinclair-Prairie, Magnolia and The Texas Co. in the entire area, also by Continental Oil in Carson-Hutchinson.

East Texas

(Effective Jan. 9, 1936)

Stanolind, Humble, Shell, Sinclair-Prairie, Texas, Sun Oil and Magnolia.....$1.15

Shell also posted on Jan. 9, in Livingston area, Polk County, Texas, $1.15.

West Texas and New Mexico

Posted by Humble Oil & Refining Co.

(Effective Jan. 14, 1936)

(Including Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler and Upton Counties, Texas, and Lea county, New Mexico).

Below 29	$0.75	33-33.9	$0.84
29-29.9	0.76	34-34.9	0.86
30-30.9	0.78	35-35.9	0.88
31-31.9	0.80	36 & above.	0.90
32-32.9	0.82		
Pecos, West Texas			$0.85

Posted by Continental Oil Co.

(Effective Jan. 9, 1936)

Artesia, Jackson and Maljamar pools, N. M. $0.80

Jan. 16, Magnolia met Humble in Crane, Upton, Howard, Glasscock, Mitchell and Winkler.

Jan. 9, Texas Co. posted Winkler and Lea counties at $0.85; Crane and Upton, $0.80.

Shell Petroleum Corp., on Jan. 23, met Humble in Crane, Glasscock, Howard, Pecos (except Yates shallow pool) Winkler, and Upton counties, Tex., and in Lea County, N. Mex. On Jan. 9, Shell posted in Yates shallow pool in Pecos county, Tex., $0.75.

Northeast Texas

(Posted by Humble, April 15, 1936)

Talco.....$0.60

(Posted by Magnolia, May 1, 1936)

Cass County (Rodessa field):
Below 29.....$0.86
29-29.9..... 0.88
Rest of schedule same as S. O. La. posts in Rodessa, which see below.

South and Southwest Texas

Posted by Humble Oil & Refining Co.

(Effective Jan. 14, 1936)

Darst Creek	$0.97	Pettus	$1.25
Salt Flat	0.97	Tomball	1.30
Saxet	0.90	Mirando	0.85

Shell Pet. Corp. on Jan. 9, posted $0.97 in Salt Flat district, Tex.

Anahuac (Chambers county) and Dickinson (Galveston county)

(Effective Jan. 9, 1936)

30-30.9	$1.04	36-36.9	$1.16
31-31.9	1.06	37-37.9	1.18
32-32.9	1.08	38-38.9	1.20
33-33.9	1.10	39-39.9	1.22
34-34.9	1.12	40 & above.	1.24
35-35.9	1.14		

Jan. 9, The Texas Co. posted $0.97 for Darst Creek.

Jan. 9, Magnolia posted $0.97 in Darst Creek; $1.30 in Tomball; $0.90 in Luling; $1.00 in Lytton Springs; $0.85 for Mirando; $1.10 for Cleveland, Liberty county, Tex.; $1.03 in Hardin, Liberty county, Tex.

Posted by Humble

Conroe and Raccoon Bend

(Deep sand crudes)

(Effective Jan. 9, 1936)

35-35.9	$1.24	38-38.9	$1.30
36-36.9	1.26	39-39.9	1.32
37-37.9	1.28	40 & above.	1.34

Jan. 9, Texas Co. met above prices.

North Louisiana-Arkansas

Posted by Standard Oil Co. of Louisiana

(Effective Jan. 10, 1936)

(In Caddo, Homer, Haynesville, Sabine, De Soto, Rodessa, Sarepta, Carterville, El Dorado and Miller county)

Below 25	$0.78	33-33.9	$0.96
25-25.9	0.80	34-34.9	0.98
26-26.9	0.82	35-35.9	1.00
27-27.9	0.84	36-36.9	1.02
28-28.9	0.86	37-37.9	1.04
29-29.9	0.88	38-38.9	1.06
30-30.9	0.90	39-39.9	1.08
31-31.9	0.92	40 and above.	1.10
32-32.9	0.94		
Smackover, Ark.			$0.75
Nevada, Ark.			0.65
Urania, La. (La. Oil Refg. Co., Jan. 1, '34)			0.87
Tepetate, La. (Continental Oil, Jan. 9, '36)			$1.12

The Texas Co., effective Jan. 9, posted in No. La.-Ark. same prices as Humble posts in West Central Texas. It also posted $0.80 for Smackover and $1.12 for La Fitte, La.

Magnolia Petroleum Co., effective Jan. 16, posted on No. La.-Ark. crude, prices beginning with $0.86 for below 29 gravity, plus 2 cent differential to 40 and above, at $1.10; this posting includes Rodessa, beginning March 16, 1936. It also posted on the same day, Eldorado (East Field), and Smackover, Ark., $0.75; Lockport, La., below 20 gravity, at $0.92, plus 2c differential, to 34 and above, which is $1.22; and for Iowa, La. and Cameron-Meadow field Cameron Parish, La., below 20 at $0.82, plus 2c differential, to 34 and above, at $1.12.

Stanolind Oil & Gas Co., Jan. 20, posted in Caddo Parish, La., below 29 oil at $0.86, plus 2c differential, to 40 & above at $1.10.

Shell Pet. on Jan. 9, posts same schedule in Black Bayou and White Castle, La. as Magnolia posts in Lockport, which see in above paragraph and in Iowa district, La. posts same schedule as Magnolia in Iowa and Cameron, which also see above.

(Continued on next page)

NEW REFINING PATENTS

Polymerization. No. 2 035 409, issued March 24, 1936; filed July 17, 1933; R. F. Ruthruff, J. K. Roberts, and M. T. Morris, assignors to Standard of Indiana; one drawing; 14 claims.

IN A PROCESS for obtaining liquid products from dilute olefinic gases, the steps of concentrating the gases to increase their olefin content, polymerizing the concentrated gases at elevated temperatures and pressures (800-1050 F. and 500-3000 pounds), subjecting unconverted gases to cracking at 1300-1750 F. to increase their olefin content, quenching the cracked gases by admixture with a part of the original dilute olefinic feed gases, further cooling the quenched gas mixture and mixing the cooled mixture with the balance of the original dilute olefinic gas feed prior to concentration thereof.

Dilute olefinic gases are concentrated by scrubbing with liquid butane or equivalent liquefied hydrocarbon fractions whereby methane and other fixed gases are eliminated and olefin gases are absorbed in the butane.

* * *

Motor fuel. No. 2 034 024, issued March 17, 1936; filed Jan. 28, 1932; L. A. Clarke, assignor to The Texas Co.; no drawing; 22 claims.

MOTOR fuel in which a small amount of an aromatic acyl derivative of a polyhydric phenol has been added. These phenols have the characteristic acyl radical, R-CO, attached to the ring of the polyhydric phenols. The acyl derivatives are said to have substantially all the advantages of the polyhydric phenols as antioxidants and furthermore are more desirable in that the acyl radical increases the solubility of the compounds in gasoline and decreases the solubility thereof in water. The disclosure names a number of compounds which may be used.

* * *

Hydrogenation. No. 2 033 914, issued March 17, 1936; filed July 5, 1929; G. F. Michot-Dupont, assignor to Physical Chemistry Research Co.; 2 diagrams; 3 claims.

PROCESS of forming liquid hydrocarbons from a mixture of water-gas and volatile gases derived from carbonaceous material which includes heating a mixture of gases to 600 C. (1112 F.) and subjecting it to the combined action of ultra-violet light and an electrostatic field produced by 80,000 to 100,000 volts. In actual operation an alloy of nickel and tin in equal proportions with a trace of mercury is also used as a catalyst.

One of the objects is to transform

CRUDE OIL MARKETS

Continued from preceding page

*Gulf Coastal Fields

Posted by Humble Oil & Refining Co.

(Effective Jan. 9, 1936)

Below 18	$0.88	26-26.9	$1.06
18-18.9	0.90	27-27.9	1.08
19-19.9	0.92	28-28.9	1.10
20-20.9	0.94	29-29.9	1.12
21-21.9	0.96	30-30.9	1.14
22-22.9	0.98	31-31.9	1.16
23-23.9	1.00	32-32.9	1.18
24-24.9	1.02	33-33.9	1.20
25-25.9	1.04	34 and above	1.22
Refugio heavy			$0.90

Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Rabbs Ridge, Raccoon Bend (shallow sand), Refugio light, Sour Lake, Spindletop, Sugarland, and West Columbia.

Above gravity and crude schedule met Jan. 9 by The Texas Co., except that Texas Co. posts $0.92 for below 20. Jan. 9, Sinclair-Prairie met above Humble schedule in full.

Rocky Mountain Fields

Posted by Stanolind Oil & Gas Co.

(Effective Jan. 9, 1936)

Salt Creek, Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma-Kansas which see.

Elk Basin, light	$1.28
Grass Creek, light	1.28
Grass Creek, heavy	0.72
Greybull-Torchlight	1.28
Iles, light, Col.	1.06
Iles, heavy	1.00
Hogback, N. M.	1.21
Frannie light (Effective Feb. 24, '36)	0.78
Frannie heavy	0.72
Hamilton Dome, Wyo.	0.67
Pondera, Mont.	1.05

Posted by Ohio Oil Co.

(Effective Jan. 9, 1936)

Elk Basin, Wyo.	$1.28
Grass Creek, light and heavy	1.28
Rock Creek	1.12
Big Muddy	1.11
(Effective June 5, 1936)	
Sunburst, Mont.	1.15

Posted by Other Companies

(Effective Jan. 9, 1936)

Cutbank, Mont. (*Internatl. Refg. Co.)	$1.50
Cat Creek, Mont. (Continental Oil)	1.28

*Texas Co. subsidiary.

CALIFORNIA, Posted by Standard Oil of California

All gravities above those quoted take highest price offered in the field. Effective Feb. 25, 1936 except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective Mar. 7, 1936

Gravity	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills, **Midway-Sunset	Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$0.80	0.79	0.74	0.78	0.79	0.80	0.76	....	....	0.80	0.76	0.76	0.77	0.78	....	0.70	....	0.65	0.70	0.65	0.70	0.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.65	.70	.65	.70	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.65	.70	.65	.70	.70	....
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.65	.70	.65	.70	.70	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.65	.70	.65	.70	.70	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	0.70	.66	.74	.66	.74	.71	0.70
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.68	.78	.68	.78	.72	.70
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	....	.73	.71	.82	.71	.82	.74	.70
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	....	.77	.74	.87	.74	.86	.78	.72
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	....	.80	.77	.92	.77	.90	.82	.76
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.80	.97	.80	.94	.86	.79
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.02	.95	....	.89	.99	.86	....	.88	.83	1.01	.83	.98	.90	.83
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.92	1.03	.90	....	.91	.86	1.06	.86	1.02	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.96	1.06	.95	....	.95	.88	1.10	.88	1.06	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	.99	1.10	.99	....	.99	.91	1.15	.91	1.10	....	....
29-29.9	1.17	1.15	.93	1.18	1.18		1.17	1.12	.93	....	1.09	....	1.03	1.14	1.03	....	1.02	.94	1.20	.94	1.14	....	....
30-30.9	1.21	1.19	.95	1.22	1.21		1.21	1.17	.95	....	....	....	1.07	1.17	1.08	....	1.06	.97	1.25	.97	1.18	....	....
31-31.9				....	1.24		1.24	1.22	.97	....	....	....	1.11	1.21	1.12	....	1.09	.99	1.29	.99			
32-32.9	*Elwood Terrace			....	1.27		1.27	1.27	1.00	....	....	....	1.14	1.25	1.16	....	1.13	1.02	1.34	1.02	Kettleman Hills		
33-33.9	....	1.28	....	....	....		....	1.32	....	....	....	....	1.18	1.28	1.20	....	1.17	1.04	1.38	1.04	....	1.19	....
34-34.9	....	1.32	....	....	....		....	1.37	....	....	....	....	1.22	1.32	1.25	....	1.20	....	....	....	....	1.23	....
35-35.9	....	1.35	....	....	....		....	1.42	....	....	....	....	1.25	....	1.29	....	....	....	....	....	....	1.27	....
36-36.9	....	1.39	....	....	....		....	1.46	....	....	....	....	1.29	....	1.33	....	....	....	....	....	....	1.31	....
37-37.9	....	1.43	....	....	....		....	1.51	....	....	....	....	1.32	....	1.37	....	....	....	....	....	....	1.35	....
38-38.9	....	....	....	....	....		....	1.56	....	....	....	....	1.36	....	1.42	....	....	....	....	....	....	1.39	....
39-39.9	....	....	....	....	....		....	1.61	....	....	....	....	1.40	....	....	....	....	....	....	....	....	1.43	....
40-40.9	....	....	....	....	....		....	1.66	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

F.O.B. Standard Pipe Line

*F.o.b. ship.

‡Also McKittrick, Kern River, Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted. **Except Lakeview Area.

the organic portion of a solid combustible of the nature of coal into gases and transform the gases into motor fuel. Another object is to provide catalytic means which will not be affected by the "poisonous" elements contained in the gases.

* * *

Dewaxing. No. 2 034 175, issued March 17, 1936; filed Dec. 29, 1932; G. F. Chase and J. A. Anderson, assignors to Standard of Indiana; one drawing; 6 claims.

METHOD of dewaxing by adding a small amount of a crystallization regulator derived from a mineral oil residuum by selective precipitation from a two to four carbon atom hydrocarbon solvent and extraction with naphtha, diluting the oil to reduce its viscosity, chilling the diluted oil to congeal the wax and separating the wax from the oil.

One of the objects is to provide for settling to very low bottoms. This is done by altering the crystal formation so that it will have a more compact form.

* * *

Solvent fractionation. No. 2 033 932, issued March 17, 1936; filed March 14, 1933; S. W. Ferris, assignor to Atlantic Refining Co. No. 2 033 942, issued March 17, 1936; filed June 28, 1933; S. S. Kurtz, Jr., assignor to Atlantic Refining Co.; no drawings; 19 and 2 claims respectively.

SEPARATION of paraffinic and naphthenic hydrocarbons by extraction with an unsaturated aliphatic alcohol or an aliphatic sulfone such as dipropyl or dibutyl sulfone. The mixture is heated to effect solution and cooled to form a two-layer system. Allyl alcohol or a mixture of solvents containing substantial amounts of unsaturated aliphatic alcohols such as crotonyl alcohol and dimethyl allyl carbinol are favored in the first instance.

* * *

Dewaxing. No. 2 035 490, issued March 31, 1936; filed June 8, 1934; B. Y. McCarty and W. E. Skelton, assignors to The Texas Co.; no drawings; 4 claims.

OIL is mixed with a selective solvent liquid composed of ortho-dichloro-benzene and a mono-alkyl ether of ethylene and di-ethylene glycol having the wax anti-solvent character and action of ethylene glycol mono-ethyl ether and diethylene glycol mono-butyl ether in such proportions that at temperatures of the order of -10 F. the mixture has substantially complete solvent action on the oil but substantially no solvent action on the wax, chilling the mixture to precipitate the wax, separating the wax and removing the solvent.

An object is to effect precipitation in a more readily filterable form. An-

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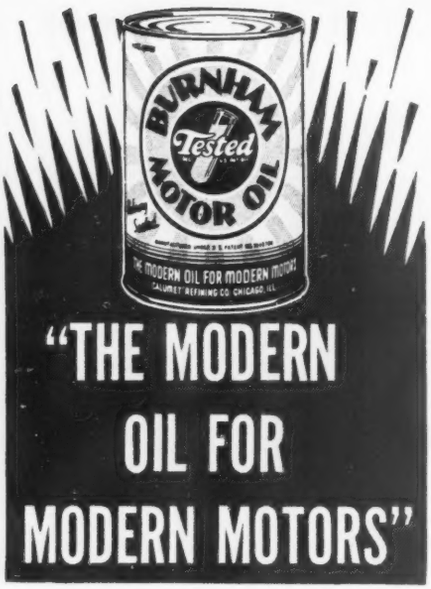

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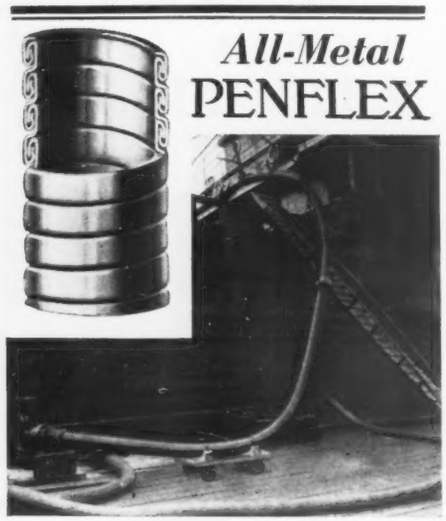

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other object is a process adaptable for manufacture of lubricating oils having pour tests of -20 F. and lower.

See also Patent No. 2,035,491.

* * *

Combustion primer. No. 2 034 643, issued March 17, 1936; filed June 1, 1933; R. de M. Taveau, assignor to The Texas Co.; no diagram; 10 claims.

METHOD of accelerating ignition of liquid fuels for diesel type engines. A compound of the general formula R-S-S-S-S-S-R, in which R is a hydrocarbon radical, or a compound of the general formula R-S-S-S-S-S-R', in which R is an alkyl radical and R' an aryl radical, is mixed with the fuel. Compounds include diethyl-tetrasulfide, di-p-tolyl-tetrasulfide, ethyl-tolyl tetrasulfide and other tetrasulfides.

* * *

Sweetening. No. 2 034 837, issued March 24, 1936; filed June 20, 1933; W. A. Schulze and L. V. Chaney, assignors to Phillips Petroleum Co.

PROCESS of sweetening without lead compounds. Oil is agitated at atmospheric temperature with an aqueous solution consisting of a strong base and a polysulfide higher than the trisulfide on an element of the group consisting of the alkali and the alkaline earth metals, and separated from the treating solution. Sodium hydroxide and sodium polysulfide may be used in an aqueous solvent containing from one to 15 per cent of a saturated aliphatic alcohol.

* * *

Lubricant refining. No. 2 035 349, issued March 24, 1936; filed May 2, 1932; H. G. Smith, assignor to Gulf Oil Corp.; three charts; 13 claims.

PROCESS combining the steps of treating with concentrated sulfuric acid, whereby a part of the acid reacts with the oil to form a removable sludge, and of deacidifying the acid oil solely by heating it to 500-650 F. The process is accomplished in at least two different steps and at two different temperatures, one of the treatments being conducted at 130-212 F.

The method is said to be a great simplification over prior methods. Much of the mechanical handling is eliminated and any tendency towards the formation of troublesome emulsions is obviated. The double acid treatment is said to be advantageous in producing lubricating oils of low carbon residue and excellent color.

* * *

Reconditioning oil. No. 2 037 218, issued April 14, 1936; filed Feb. 12, 1932; A. W. Empson, assignor to J. Stone & Co., Ltd.; 6 drawings; 4 claims.

METHOD of freeing an oil from solid suspended matter of colloidal nature. There is dispersed in the oil a small quantity of plain water in a highly atomized state by passing the oil and water together through relatively small labyrinthine ducts at high velocity. The particles of water have extreme intimacy with particles of suspended matter and produce aggregation of the latter. The water and aggregated particles can then be separated.

It is important to refrain from the addition of chemicals, such as alkalies, to oils which are to be reconditioned. The treatment may be carried out in a centrifugal machine.

* * *

Cracking. No. 2 035 239, issued March 24, 1936; filed April 4, 1933; I. M. Levine, assignor to Texas Pacific Coal & Oil Co.; two drawings; 13 claims. No. 2 035 275, issued March 24, 1936; filed March 25, 1933; G. M. Pfau and H. H. Pruitt, assignors to Texas Pacific Coal & Oil Co.; one drawing; 8 claims.

EXPANSION tank apparatus for cracking in the vapor phase. Consists of a pair of expander tanks connected in series through each of which a number of vertical heating tubes extend. Means are provided for passing heating gases alternatively through the tubes of either tank and thence through the tubes of the other tank. One object is to obtain high thermal efficiency and even heating without subjecting the apparatus to excessive temperatures.

This is His Position Day and Night

Seek Aid in Tennessee Gas Tax Inquiry

NASHVILLE, June 6.—A special session of the Tennessee legislature to empower gasoline tax investigators to subpoena witnesses and records is under consideration. Handicapped by stripped files in the gasoline tax division and lack of co-operation on the part of some witnesses, auditors and attorneys conducting the investigation of tax evasion are anxious to force the surrender of records and to place witnesses under oath for questioning.

The state, which has one of the highest gasoline taxes in the country—7 cents a gallon—is said to be losing $2,000,000 a year through bootlegging and evasion. The state's department of finance and taxation has recently been reorganized to prevent a repetition of the current scandal.

The supreme court recently ruled that Tennessee tax authorities have a right to seize the property of three local oil companies until delinquent gasoline taxes have been paid.

Golf Tournament June 23 For Twin City Oil Men

ST. PAUL—The annual spring golf tournament for St. Paul-Minneapolis oil men will be held June 23 beginning at noon at the Hillcrest Golf club, St. Paul.

The low gross scorer will be awarded a trophy offered by Gregory A. Burns, Butler Manufacturing Co. All contestants are eligible except winners of previous Butler trophies.

Prizes are offered for various degrees of skill in golf, including those who play the game in the club house, and also an outboard motor will be offered by the committee.

The tournament is to be held June 23, regardless of weather conditions, and the committee guarantees a good time for all.

Committee members for the tournament are Gregory A. Burns, Butler Manufacturing Co.; Elwin E. Hadlick, Twin City Petroleum Club; C. W. Johnson, Rex Oil Co.; George Murphy, Petroleum Service Co.; Rube Ohman, Pure Oil Co.; and H. L. Prestholdt, Old Colony Gas & Oil Co.

Film Shown at Oil Club

CHICAGO, June 1.—"From Trees to Tribunes", an interesting film depicting a newspaper from the forest until the time it reaches the street, was shown to members and guests of the Chicago Oil Men's Club May 28.

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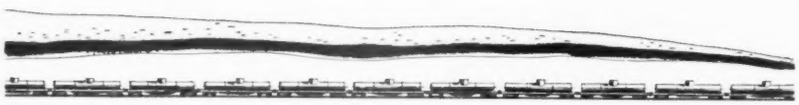

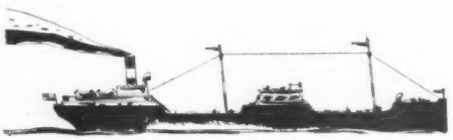

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Chicago Oil Association Holds Golf Outing

CHICAGO—Golf was the order of the day at the annual outing of the Chicago Burning Oil Distributors Association June 3 at the Kildeer Country Club, north west of Chicago.

The more than 100 guests present stood at attention for one minute in tribute to the late I. A. Archambault, prominent Chicago oil man who died one year ago June 3.

Mel Keim, Apex Motor Fuel Co. turned in the lowest score. Other prize winners were: H. Jensen, Spencer Petroleum Co.; E. Belmont, Braun Bros. Oil Co.; B. Tyman, Central Republic Trust; M. F. Swaney, Chicago American; E. T. Carlson, Commerce Petroleum Co.; F. Belmont, Braun Bros. Oil Co.; Harry Wilkie, Hughes Oil Co.; Karl Holderfer, Commerce Petroleum Co.; E. C. Steffy, Empire Oil & Refg. Co.; J. A. McIlvaine Burner Sales Corp.

Lee W. Essex, Timken Silent Automatic Burner Co.; F. E. Spencer, Spencer Petroleum Co.; F. E. Malone, Shell Petroleum Corp.; A. L. Lake, Liberty Oil Co.; Carl O. Staley, Battendorf Oil Burner Co.; Wilson Henry, Valvoline Oil Co.; E. W. Smith, Sterling Fuel Oil Corp.; H. T. DuBreill, Deep Rock Oil Corp.; W. F. Ross, Deep Rock Oil Corp.; S. E. Nielsen, Pure Oil Products Co.; C. P. Hirth, Hughes Oil Co., and C. E. Prince, Pure Oil Products Co.

Tax Embezzlement Charged

NEW YORK, June 6.—Albert and Max Johnson, brothers, and Louis Aisuss, former officials of Active Oil Co., Chicago, have been indicted on embezzlement charges involving alleged failure to pay $30,677 in state gasoline taxes, according to the American Petroleum Industries Committee.

This is the second time the Johnson brothers have been charged with evading the gas tax. They were convicted in 1934 in Cook County criminal court on conspiracy to cheat the state out of more than $100,000. They were sentenced to two years in jail and fined $3000 each, but the supreme court held the indictments were improperly drawn.

Traffic Signal Familiarity Needed

All states should print on the envelopes in which they put their license tags simple instructions as to how a motorist shall signal for stopping, right hand and left hand turns, writes Ben Nichols, manager of Schaeffer Bros. & Powell Mfg. Co., St. Louis.

There are too many motorists who have the idea that "sticking their hand out" constitutes a traffic signal, and

the people following behind should read their minds and know exactly what they intend to do. Anyone who drives has noticed on countless occasions the driver who swerves toward the center of the street, sticks out his hand, and then turns to the right.

While these signals are not the law in many states, we do not believe it would be illegal to call them to the driver's attention, says Mr. Nichols. Such signals are almost universally used and courtesy demands informing other traffic of changes in the direction of travel.

Threaten Action Against Free Burner Service

NEW YORK, June 6.—Condemning the practice of some companies engaged in the sale of fuel oils of rendering free burner service in connection with the securing of fuel oil contracts, Fuel Oil Association, Inc. of New York has served notice on fuel oil dealers in the metropolitan area that complaint will be filed with the Federal Trade Commission with a request to prosecute if the practice is not discontinued.

The association states in a bulletin to member and non-member dealers that counsel has advised that free burner service is "an unfair method of competition and violates the law. Section 5 of the Federal Trade Commission Act gives that body power to prevent person from using such unfair methods of competition in commerce."

New Texas Corp. Issue

Texas Corp. will offer $60,000,000 15-year 3½ per cent debentures and will be used to redeem $60,000,000 5 per cent debentures, due 1944, on Oct. 1 at 101, according to the registration statement filed with the Securities and Exchange Commission.

The new debentures will be redeemable at 103 on or before June 15, 1941; thereafter through June 15, 1942, at 102 and thereafter the premium will be reduced by ¼ of 1 per cent for each full year elapsed after June 15, 1941.

Dillon, Read & Co. will head the underwriters of the issue.

COMING MEETINGS

(*Continued from page* 17)

American Petroleum Institute, 17th annual meeting, Stevens Hotel, Chicago, Nov. 9 to 12.

Independent Petroleum Association of America, annual meeting, Oklahoma City, Okla., Nov. 30 and Dec. 1.

1937

Kentucky Petroleum Marketers Association, Brown Hotel, Louisville, Ky., Feb. 8, 9, 10.

Why buy coal? ..Burn OIL and SAVE!

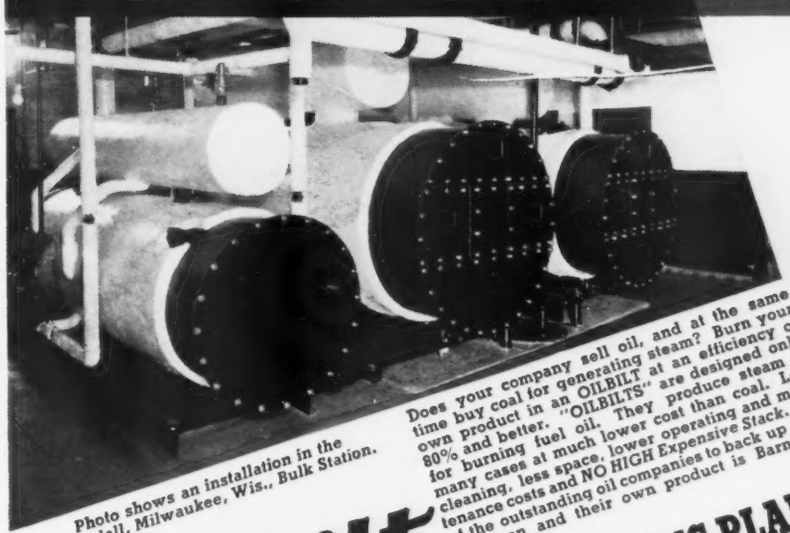


Photo shows an installation in the Barnsdall, Milwaukee, Wis., Bulk Station.

Does your company sell oil, and at the same time buy coal for generating steam? Burn your own product in an "OILBILT" at an efficiency of 80% and better. "OILBILTS" are designed only for burning fuel oil. They produce steam in many cases at much lower cost than coal. Less cleaning, less space, lower operating and maintenance costs and NO HIGH Expensive Stack. One of the outstanding oil companies to back up their salesmen and their own product is Barnsdall.

219-M

Oilbilt "The Modern Plant" **STEAM GENERATING PLANTS**

Write to CLEAVER-BROOKS CO.
129 W. WELLS STREET Dept. G. MILWAUKEE, WISCONSIN

ESSO STATION

NOT CONNECTED With Standard Oil Company (Indiana)

Now motorists in the Middle West can obtain at Esso Stations in St. Louis:

ESSO -for Premium Motor Fuel
ESSOLENE—for Regular Motor Fuel
ESSOLUBE—for Motor Oil
ESSOLEUM—for Greases and Lubricants.

THE SIGN OF HAPPY MOTORING

For the past several years, motorists in the East and in the South have been familiar with "the ESSO sign". This big red, white and blue ESSO oval has marked the source of fine products and courteous service at more than 30,000 ESSO STATIONS and ESSO DEALERS from Maine to Louisiana.

ESSO INC.

Please Note That the Standard Oil Company (Indiana) HAS NO CONNECTION WITH ESSO STATIONS or ESSO Inc.

Dykem Colors for Gasoline

—o—

DYKEM ORANGE GY
(yellowish orange shade)

DYKEM ORANGE Y
(reddish orange shade)

DYKEM ORANGE GR
(deep orange shade)

DYKEM BRONZE ORANGE R
(bronze orange shade)

DYKEM AMBER Y
(amber shade)

DYKEM BRILLIANT YELLOW
(sunset golden shade)

DYKEM YELLOW N
(lemon shade)

DYKEM GREEN GN
(bright emerald shade)

DYKEM GREEN YN
(medium emerald shade)

DYKEM GREEN N
(bluish grass shade)

DYKEM GREEN BN
(deep sea shade)

DYKEM BLUE
(deep sky shade)

DYKEM VIOLET
(deep violet shade)

DYKEM PURPLE R
(bright purple shade)

DYKEM RED B
(bluish rose shade)

DYKEM RED
(scarlet shade)

DYKEM BROWN YR
(walnut brown shade)

DYKEM BLACK B
(deep black shade)

All orders filled with dispatch
Write or wire

DYESTUFFS & CHEMICALS INCORPORATED
11th & Monroe Sts.
St. Louis, Mo.

In Canada: The Dykem Company of Canada Limited
14 Toronto St., Toronto, Ont.

ON THE LAZY BENCH

They've Escaped

G-Man: "Got away, has he? Did you guard all the exits?"

Country Constable: "Yes, but we think he must have left by one of the entrances."

—The Unloading Rack,
A. Y. McDonald Mfg. Co.

—NPN—

O stop and let the train go by,
It hardly takes a minute;
Your car then starts again intact—
And, what is more, you're in it.

—The Viking Vacuum,
Viking Pump Co.

—NPN—

A System

"Are you saving any money since you started your budget-system?"

"Sure. By the time we have balanced it up every evening it's too late to go anywhere."

—The Oil Can
Illinois Petroleum Marketers Ass'n.

—NPN—

Little Boy (looking at mother's new opera wrap): "How some poor beast must have suffered so you could have such a fur coat!"

Mother: "Hush, Roscoe. You mustn't talk that way about your father."

—The Diamond,
Mid-Continent Petroleum Corp.

—NPN—

A boy was about to purchase a seat for a movie in the afternoon. The box-office man asked:

"Why aren't you at school?"

"Oh, it's all right, sir," said the youngster, earnestly, "I've got measles."

—Marquette Lubricator
Marquette Petroleum Products, Inc.

—NPN—

A Wise Answer

"Where is Jimmy this afternoon?"

"If he knows as much about canoes as he thinks he does, he is out canoeing, but if he doesn't know any more about it than I think he does, he's swimming."

—The Diamond
Mid-Continent Petroleum Corp.

—NPN—

Smith: "Every time I stay out late at night my wife gets historical."

Jones: "You mean hysterical, don't you?"

Smith: "No, I mean historical. She digs up my past, you know."

—Electrical News
Petroleum Industry Electrical Assoc.

—NPN—

A stenographer lost her job in a nudist colony because she forgot and covered her machine at quitting time.

—Isotopics,
American Chemical Society

—NPN—

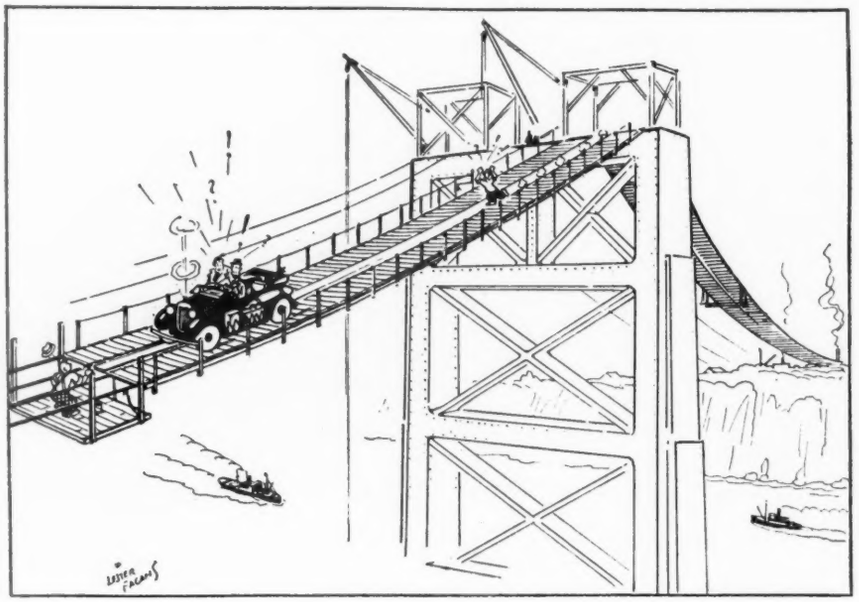
Chaplain: "How could you have the heart to swindle people who trusted in you?"

Prisoner: "But, parson, people who don't trust you cannot be swindled."

—Firefax
Pyrene Mfg. Co.

—NPN—

One thing about long engagements—they make married life shorter.



"Now are you convinced that the road map that service man gave us is out of date?"

—The Texaco Mission

Interesting TRADE ITEMS

Fire Extinguishers

An illustrated pamphlet entitled "Instant Death to any Fire" is the first complete job describing all sizes of carbon dioxide portable fire extinguishing equipment of Walter Kidde & Co., New York. It includes the Model 2, a unit which releases two pounds of gas and is suitable for homes, garages, cars, trucks and many small isolated industrial hazards, as well as larger units effective at service stations and bulk plants. The illustration is Model 50 having a capacity of 50 pounds of gas.

* * *

Canned Oil

The merchandising of oil in cans is covered step by step in a new and colorful portfolio published by the American Can Co., New York. The need for proper refinery-sealing the can with efficient opening device and dispenser, for attractive displays on modern type racks, for outdoor signs to call attention to the oil, for dealer education on selling and for the training in effective sales methods of service station attendants by motion picture films, tell the story of the effort put behind canned oil from can factory to crankcase.

* * *

Air Hose

A new air hose which features a new cord construction principle has been announced by the New York Belting & Packing Co., Passaic, N. J. It is known as the Sterling Cord Air Hose, and is built much like a tire, with the cords laid in rubber cushions and isolated from adjacent plies. Chief among its advantages are lighter weight, more flexibility, greater resistance to pressure, and long life.

* * *

Drum Gauge

Petroleum Accounting Service now offers the Bardill drum gauge to measure the contents of partly filled oil drums, cans, and pails of 21 different sizes, it is said. No tables or multiplying to be done—it's all on the gauge.

Movie Pilot Eddie Nugent, now playing in "Dancing Feet", lands Stewardess Barbara Pepper in a scene from a Republic Picture which was filmed on . . .

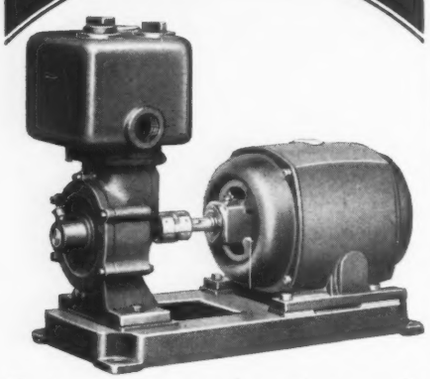
. . an American Airlines plane. American Airlines is the country's largest air-transport company and relies on . . .

. . Sinclair Pennsylvania Motor Oil exclusively for its great fleet of planes. Wouldn't you like to sell a product that enjoys this national reputation? . . .

. . Dealers, distributors and jobbers are invited to phone the local Sinclair office for details, or write Sinclair Refining Company (Inc.), 630 Fifth Ave., New York, N. Y.

Roots
CONNERSVILLE

BULK STATION PUMPS



Performance records on their toughest pumping jobs daily influence bulk station managers to specify more of these pumps. Seven sizes—20 to 350 gals. per minute.

High Vacuum.. ..Self-Priming

WILL NOT VAPOR LOCK

The Type "T" Pump, with its balanced impeller giving continuous flow with no shock to the liquid, handles volatiles efficiently under adverse conditions. Long suction lines are readily evacuated. High lift, and excessive temperatures will not cause the pump to vapor lock. Because of its rugged simplicity, the pump gives years of trouble-free service with minimum attention.

Write for Bulletin 260-B 12.

ROOTS-CONNERSVILLE
Blower Corporation
CONNERSVILLE, INDIANA

May Put Chain Store Tax Proposal On Ballot in California

LOS ANGELES, June 5

IF EFFORTS now under way are successful, California voters will be asked to include service stations among those establishments affected by a chain store tax measure scheduled to be submitted to them at the November presidential election.

A law providing for a graduated tax on stores operating under one management, but exempting service stations, was passed at the 1935 session of the State Legislature. It was prevented from operating by a referendum action and has been placed on the ballot.

However, initiative petitions are being circulated through 72 independent lines of business in the state, including service stations, in an effort to obtain the necessary number of qualified signatures to a measure that would be essentially the same as the chain store law but would carry no exemptions.

This initiative requires stores to obtain licenses to operate and provides increasing fees with the revenue to be deposited to the credit of the state's general fund. It defines "store" as including all mercantile and other establishments retailing goods or merchandise and owned, operated or controlled by the same person or organization.

It requires an annual license fee to operate of $1 for one store, if more than one then $2 for second, $4 for third, $8 for fourth, $16 for fifth, $32 for sixth, $64 for seventh, $128 for eighth, $256 for ninth, $500 for tenth and for each store oven ten.

Application for licenses is to be made on a form prescribed and furnished by the State Board of Equalization. If the applicant desires to operate more than one store he must make a separate application for a license to operate each. A filing fee of 50 cents must accompany each application in addition to the graduated license fee. Provision is made that all stores may be listed on one application blank although such a procedure would be considered as making a separate application for each store.

Experts are of the opinion that this measure has an excellent chance of making the California ballot and that it has a better than even chance of being passed by the voters. To be placed on the ballot, the act must receive the signed approval of 187,000 voters by July 15, and must receive a majority vote to pass. Proponents of the initiative claim to have in excess of 30,000 signatures to date. They expect to obtain upward of 250,000 signatures before the dead line, or more than enough to offset those thrown out because of irregularities.

Some attempt is made to define control in Section 8 of the Act which provides: "The provisions of this act shall be construed to apply to every person, firm, corporation, association or co-partnership, either domestic or foreign, which is controlled or held with others by a majority stock ownership or ultimately controlled or directed by one management or association of ultimate management."

It is further provided that, "every person opening, establishing, operating or maintaining one or more stores within the state, under the same general management, supervision or ownership, shall pay the license fee prescribed, for the privilege of opening.

The Steadiest of All Drains

establishing, operating or maintaining such stores."

The opinion is held by some authorities that under provisions of this act, California marketing companies operating service stations on a form of lease and agency agreement would not be subjected to the charge of chain operation. However, at least three Pacific Coast oil companies operate the bulk of their stations with salaried operators and would be directly affected by this measure.

Another initiative measure being circulated for signatures carries the title of "Prohibiting Tide Land Surface Oil Drilling. Authorizing Slant Drilling from Uplands." It would prohibit drilling from the surface of tide, submerged and overflow lands not heretofore leased and allocated.. The Director of Finance is authorized on behalf of the state to execute 30-year subsurface leases upon 14 2/7 per cent royalty to the state for oil, gas or other hydrocarbons extracted from tidelands by wells slanted from the mainland.

It prohibits pollution of tide, ocean, bay or inlet waters and provides the use of one half of the state's revenue from such leases to acquire, improve and maintain beaches and parks. The other half would be paid into the general fund. The measure also repeals conflicting legislation.

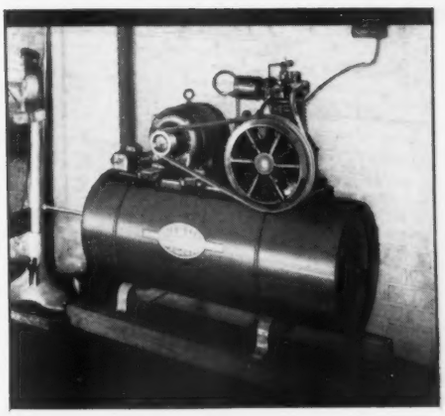
This act is understood to be sponsored by special interests who would benefit by a law permitting slant-hole or directional drilling into known oil reserves in the California tidelands from non-productive shore locations. Huntington Beach, with some 300 acres of the productive zone lying offshore, would lend itself admirably to such a setup.

Observers look for this act to receive the necessary number of qualified signatures to place it on the ballot, but there is considerable doubt that it will receive approval at the polls.

New Bentonite Plant

JACKSON, Miss.—A new $300,000 plant for the refining of bentonite filter clay is in operation by the Filtrol Corp. here, capable of producing 60 tons daily of refined bentonite. The raw clay is derived from Smith County, Mississippi.

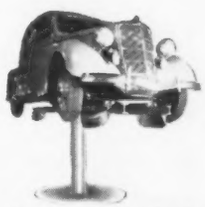
In refining this clay, which is used in the cotton oil and linseed oil industries in addition to petroleum refineries, the raw material is dried in a rotary dryer at a temperature of 235 F.. The dryer is natural-gas fired, the furnace being held at about 3000 F. The dried clay is then heated in the presence of sulfuric acid which removes undesirable materials; waste material is removed later by a series of washers, and the dried clay sacked for shipment. The plant is under the direction of H. E. Sidener, resident superintendent.



Low-Cost AIR SERVICE
with
CURTIS COMPRESSORS

You will have a more dependable air supply—and at *lower cost*—with a Curtis Compressor. You pay no more for Curtis equipment, and the final cost is lower because of greater efficiency, lower current consumption, longer life, and freedom from trouble.

These important advantages are the result of Curtis' 42 years' experience in building fine compressors—advanced design—high-grade materials—and precision methods of manufacture.



Curtis Oil-locked Lifts safely handle *all* cars. Complete accessibility. Self-leveling platform can't stick. Drop-away wheel guides automatically locate car. Full four ton capacity.

- **Positive Centrifugal Unloader** (*No starting load*)
- **Timken Bearings** (*Less friction—adjustable*)
- **Centro-ring Oiling** (*Positive lubrication*)
- **"V" Belt Drive** (*Quiet—more efficient*)
- **Simplified Assembly** (*Less chance for leakage*)
- **Pressed Steel Base** (*Strong, reduced weight*)
- **Precision Workmanship** (*Insures efficiency—long life*)

CURTIS PNEUMATIC MACHINERY CO.
1965 Kienlen Ave., St. Louis, Mo.
NEW YORK • CHICAGO • SAN FRANCISCO

NORTH AMERICAN CAR CORP.
Established 1907
TANK CARS FOR LEASE
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TULSA
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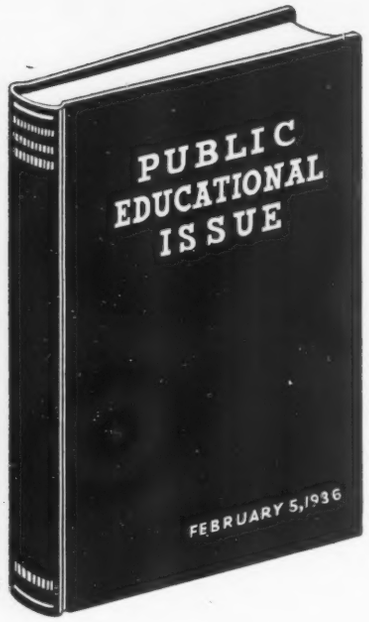

HOW big is the oil industry? How many people does it employ? What is the extent of the oil industry's payroll?

How much crude oil has been taken from the earth? How much oil is there left in the ground? What will we do for motor fuel if all the crude oil were exhausted?

You will find the answers to these questions and hundreds of others . . . in the February 5th Public Educational Issue of NATIONAL PETROLEUM NEWS.

A volume of 512 pages that tells the story of oil from the early days to the present . . . in a manner never before attempted in the history of the oil industry. Packed with facts, charts, graphs and pictures relating to the production, refining, marketing and retailing of oil . . . this Public Educational Issue is truly the greatest STORY OF OIL ever told!

Every man identified with the oil industry . . . whether owner, executive or employe—will want to own this remarkable compilation on oil.

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530 Penton Bldg., Cleveland, Ohio

Yes, send a bound volume of the Public Educational Number. Enclosed is $2.25 per copy delivered.

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NEW PATENTS

Prepared by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 25c each. State number of patent and name of inventor when ordering.

May 26, 1936

REFINING

Process of treating hydrocarbon oil—Wright W. Gary, Great Neck, N. Y. Filed Jan. 8, 1934. No. 2,041,754.

Hydrogenation of carbonaceous materials—Theodor W. Pfirrmann, Castrop-Rauxel, Germany. Filed May 31, 1932. No. 2,041,858.

Method of dewaxing mineral oils—Henri Walch, Paris, France. Filed Sept. 5, 1934. No. 2,041,885.

Apparatus for and process of fractionation—Walter Hagenbuch, Martinez, Calif., assignor to Shell Development Co. Filed Dec. 1, 1930. No. 2,042,150.

Process for purification and desulphurization of low boiling distillates—Garland H. B. Davis, Baton Rouge, La., assignor to Standard-I. G. Co. Filed Aug. 31, 1929. No. 2,042,298.

Process for manufacture of highly unsaturated or aromatic distillates from heavier oils—Robert T. Haslam, Westfield, N. J., assignor to Standard-I. G. Co. Filed May 31, 1930. No. 2,042,306.

The following to Bennett-Clark Co., Santotion, Tex., as assignee of the inventors, Charles O. Hoover, of that place.

Process for purifying hydrocarbon oils—Filed Aug. 10, 1935. No. 2,042,050.

Process for purifying hydrocarbon oils—Filed Sept. 9, 1932. No. 2,042,051.

Process for treating mineral oils—Filed May 25, 1931. No. 2,042,052.

Refining hydrocarbon oils and vapors—Filed Mar. 26, 1932. No. 2,042,053.

Process for sweetening hydrocarbon oil—Filed Nov. 11, 1930. No. 2,042,054.

Process of sweetening sour hydrocarbon oil—Filed Feb. 24, 1933. No. 2,042,055.

Process for sweetening sour petroleum oil and revivification of the sweetening agent—Oscar Codier, Houston, Tex., assignor to Bennett-Clark Co. Filed Feb. 27, 1932. No. 2,042,056.

MISCELLANEOUS

Safety systems for pipe lines—George I. Rhodes, Glen Ridge, N. J., assignor of one-half to Ford, Bacon & Davis, New York, N. Y. and one-half to Phillips Petroleum Co. Filed November 18 and 21, 1930. Nos. 2,041,862 and 2,041,863.

Lubricant containing pseudopimaric acid and preparation thereof—Edward A. Brennan and Washington Hull, Savannah, Ga. Filed Feb. 28, 1934. No. 2,042,035.

Plastic composition—Robert I. Colmar, Port Neches, Tex., assignor to Texas Co. Filed Aug. 10, 1933. No. 2, 042,038.

Method of producing hydrocarbon oxygen compounds—John C. Walker, Eldorado, Kans., assignor to Empire Oil & Refining Co. Filed May 17, 1927. No. 2,042,134.

Method and apparatus for protecting oil storage tanks—John E. Pollock, Baytown, Tex., assignor to Standard Oil Development Co. Filed Dec. 30, 1933. No. 2,042,274.

Insecticide—Hyym E. Buc, Roselle, N. J., assignor to Standard Oil Development Co. Filed Mar. 12, 1931. No. 2,042,296.

Paper material carrying a resin of petroleum origin—Carleton Ellis, Montclair, N. J., assignor to Standard Oil Development Co. Filed Sept. 24, 1931. No. 2,042,299.

Production of aldehydes—Per K. Frolich and Peter J. Wiezevich, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed May 29, 1931. No. 2,042,303.

Method of treating partial oxidation products (partially oxidizing hydrocarbon gases)—Joseph H. James, Pittsburgh, Pa. Filed Oct. 13, 1934. No. 2,042,314.

Flashlight attachment for gasoline hose nozzles—Robert L. Boring, Lexington, Ky. Filed June 26, 1935. No. 2,042,385.

The following to Shell Development Co. as assignee of the inventors:

Production of tertiary alcohols and products thereof—Richard M. Deanesly, Berkeley, Calif. Filed Mar. 11, 1935. No. 2,042,212.

Recovery of organic acid esters—Theodore Evans and Karl R. Edlund, Berkeley, Calif. Filed Aug. 4, 1934. No. 2,042,218.

Preparation of unsaturated ethers—Herbert P. A. Groll, Oakland, and Clarence J. Ott, Berkeley, Calif. Filed Jan. 29, 1934. No. 2,042,219.

Catalytic oxidation of unsaturated alcohols—Groll and Henry W. de Jong. Filed Apr. 18, 1934. No. 2,042,220.

Production of unsaturated esters and products thereof—Groll and George Hearne. Filed June 5, 1934. No. 2,042,221.

Treatment of unsaturated halides—Groll and James Burgin. Filed June 23, 1934. No. 2,042,222.

Rearrangement of unsaturated halides—Groll and Burgin. Filed June 23, 1934. No. 2,042,223.

Process of converting a polyhydric alcohol to a carbonyl compound—Groll and Hearne. Filed June 27, 1934. No. 2,042,224.

Conversion of halogenated alcohols to carbonylic compounds—Groll and Carl T. Kautter. Filed July 3, 1934. No. 2,042,225.

Process for preparing of inhibitors—Jan D. Ruys and Russell L. Kittle, Pittsburg, Calif.—Filed Apr. 3, 1935. No. 2,042,412.

June 2, 1936

REFINING

Treatment of cracked hydrocarbon distillates. Harold V. Atwill, White Plains, N. Y., assignor to Gray Processes Corp. Filed Nov. 24, 1934. No. 2,042,448.

Treatment of hydrocarbons. James H. Boyd, Jr., Philadelphia, Pa., assignor to Atlantic Refining Co. Filed Sept. 8, 1933. No. 2,042,452.

Refining hydrocarbons. William J. Sparks, Niagara Falls, N. Y., assignor to E. I. du Pont de Nemours & Co. Filed May 26, 1933. No. 2,042,557.

Method of refining hydrocarbon oils. Arthur Lachman, Berkeley, Calif., assignor to Vapor Treating Processes, Inc. Filed June 27, 1930. No. 2,042,718.

Treatment of petroleum oils. Eric B. Hjerpe, Pittsburgh, and William A. Gruse, Wilkinsburg, Pa., assignors to Gulf Research & Development Corp. Filed Nov. 2, 1934. No. 2,042,995.

OIL TRADEMARKS
For Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

RICHFIELD, picture of eagle, Ser. No. 342,101. William C. McDuffie, receiver of Richfield Oil Company of California, Los Angeles, Calif. Filed Oct. 2, 1933.

For Petroleum and Petroleum Products—Namely, Gasoline, Lubricating Oils, and Greases, Kerosine, and Distillate for Engine Fuel.

ZERO-SET, (fancifully displayed, wording being disclaimed), Ser. No. 371,672. S. F. Bowser & Company, Inc., Fort Wayne, Ind. Filed Nov. 18, 1935.

For Measuring and Dispensing Unit for Oil and Gasoline and Other Liquids.

LUBER-FINER, Ser. No. 376,057. Luber-Finer Incorporated, Los Angeles, Calif. Filed Mar. 16, 1936.

For Liquid Refiners, Particularly Adapted for Use in Refining Lubricating Oil.

FILM-X, Ser. No. 373,569. H. G. Hornibrook, Minneapolis, Minn. Filed Jan. 11, 1936.

The word "Film" is disclaimed apart from the mark.

For Lubricating Oils & Greases.

ESSODIESEL, Ser. No. 375,606. Standard Oil Company of New Jersey, Wilmington, Del. Filed Mar. 5, 1936.

For Refined, Semirefined, and Unrefined Oils Made from Petroleum, Both With and Without Admixture of Animal, Vegetable, or Mineral Oils for Power, Fuel, and Lubricating Purposes, and Lubricating Greases.

DIESELINE, Ser. No. 375,732. Shell Oil Company, San Francisco, Calif. Filed Mar. 7, 1936.

For Liquid Fuel for Compression Ignition Motors.

TAVERN, Ser. No. 377,286. Socony-Vacuum Oil Company, Inc., New York, N. Y.—Filed Apr. 16, 1936.

For Composition for Cleaning Painted, Varnished, and Lacquered Surfaces, Tile, and Porcelain; a Composition for Cleaning Window Glass; a Composition for Cleaning Textile Fabrics; a Composition for Cleaning and Polishing Leather; and a Wax Impregnated Polishing Pad for Automobiles and Furniture.

PERCOSOL, Ser. No. 376,101. Phillips Petroleum Company, Bartlesville, Okla. Filed Mar. 17, 1936.

For Chemical Product Used to Dissolve Deleterious Material in Oil Bearing Strata and Oil Well Equipment.

GRAPH-O-LITE, Ser. No. 269,145. Universal Motor Oils Company, Wichita, Kansas. Filed Sept. 9, 1935.

For Cup Grease and Gun Grease.

DANIEL'S EBONITE, Ser. No. 373,973. Quaker City Rubber Company, Philadelphia, Pa. Filed Jan. 22, 1936.

For Rubber Inner Tubes, Rubber Machinery Packing, Gasoline Hose, and Garden Hose.

MORRISON
Storage Tank
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TRANSACTIONS IN OIL STOCKS ON NEW YORK STOCK EXCHANGE

1935 High	1935 Low	1936 High	1936 Low	Listed Shares	Par Value	Company	Current Dividend	Last Div. Paid	Transactions Week Ended June 6 Sales Shares	Week's High	Week's Low	Week's Last	Week's Change
80	48½	125½	75	788,675	N.P.	Amerada Corp.	50cQ	Jan. 31, 36	500	95	93	93	— ½
44	29¾	51⅛	36	2,290,412	$25	Associated Oil Co.	25c	May 1, 36	.....	.....	.....	.....	.....
28	20½	35⅛	26⅝	2,696,652	25	Atlantic Refining Co.	25cQ	Mar. 16, 36	6,400	27½	26⅝	27	— ⅛
14¾	5⅞	20	14⅛	2,258,779	5	Barnsdall Corp.	20c	May 1, 36	7,200	16⅝	15⅞	16⅛	+ ⅛
9⅞	6¾	24¾	8¼	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	3,380	23	15¾	21	+ 4
12¼	6½	15¼	11½	13,996,072	N.P.	Consolidated Oil Corp.	25c	Apr. 1, 36	30,300	12	11⅝	11⅝	— ¼
112½	108½	105½	101	132,771	$100	do pfd.	$1.25Q	June 1, 36	.....	.....	.....	.....	.....
35	15⅛	38½	28⅛	4,722,652	5	Continental Oil Co.	25c	Apr. 30, 36	10,900	29	†28⅛	28⅛	— 1
22½	11¾	34¾	22	413,333	$10	General Asphalt Co.	....	.....	1,700	25⅞	24	24⅜	— ⅞
17¾	9⅛	.....	.....	95,841	100	Houston Oil Co.	....	.....	.....	.....	.....	.....	.....
7	1½	12¼	6⅜	678,234	25	do v.t.c.	....	.....	7,700	8½	7⅞	7⅞	— ½
5¼	2⅛	13⅝	4⅛	1,207,132	10	Indian Refining Co.	....	.....	500	9¾	9½	9¾	0
1⅞	⅜	.....	.....	1,309,060	N.P.	Louisiana Oil Ref'g. Corp.	....	.....	.....	.....	.....	.....	.....
15	4½	51½	13	40,000	$100	do pfd.	....	.....	3,950	41	31	35¼	— 6¾
3	1	6¾	2¼	330,000	N.P.	Maracaibo Oil Exploration Co.	....	.....	800	3⅞	3⅝	3⅝	0
20½	9½	23	17¼	1,857,912	$10	Mid-Continent Pet. Corp.	40c	June 1, 36	4,500	19⅝	18¾	18¾	— ¼
14¼	9¼	17½	12½	6,563,377	N.P.	Ohio Oil Co.	15c	Dec. 14, 35	8,100	13¼	12⅝	13	+ ⅛
21	10¾	20⅝	14½	4,699,885	$5	Pan Amer. Pet. & Transp. Co.	....	.....	.....	.....	.....	.....	.....
1⅞	½	4¼	1⅜	199,370	N.P.	Panhandle Prod. & Ref'g. Co.	....	.....	300	2⅝	2⅝	2⅝	— ⅛
20	6½	74½	18½	17,994	$100	do pfd.	....	.....	50	61	59	59	— 3
14	7⅝	18	12⅜	2,153,444	5	Petroleum Corp. of America	25c	May 29, 36	2,400	13	12⅜	12½	— ⅛
40	13¾	49⅜	38⅛	4,439,450	N.P.	Phillips Petroleum Co.	25cQC	June 1, 36	8,600	40⅞	39⅛	39⅛	— 1¼
1¼	⅛	2¼	⅞	1,184,817	$25	Pierce Oil Corp.	....	.....	.....	.....	.....	.....	.....
8	2¾	17	8	150,000	100	do pfd.	....	.....	700	11⅜	11	11⅜	+ ¼
1¾	⅝	2½	1½	2,500,000	N.P.	Pierce Petroleum Corp.	....	.....	1,400	1¾	1¾	1¾	0
13	6½	16½	11⅞	1,050,000	$5	Plymouth Oil	25cQ	Mar. 30, 35	4,100	14	13⅜	14	+ ⅛
17	5⅞	24⅞	16¼	3,038,370	N.P.	Pure Oil Co.	.....	.....	28,100	17½	†16¼	16⅝	— ⅜
103	34¾	118	91¼	167,640	100	do 6% pfd.	$19.125d	Apr. 20, 36	800	96⅜	96	96⅜	+ ⅜
119⅞	49⅝	133½	103	130,000	100	do 8% pfd.	$25.50d	Apr. 20, 36	210	107½	106⅛	107½	+ ½
48½	29½	57⅝	48⅜	425,342	a	Royal Dutch Co. (N. Y. shares)	$1.70	Aug. 1, 35	.....	.....	.....	.....	.....
36⅞	20¾	42½	30¾	1,244,383	N.P.	Seaboard Oil of Del.	25c	Mar. 14, 36	1,900	32¼	†30¾	32¼	+ 1
39	20⅜	48	38½	56,148	£2	Shell Transport & Trading Co.	$1.237	July 24, 35	.....	.....	.....	.....	.....
16½	5½	19¼	14¾	13,070,625	N.P.	Shell Union Oil Corp.	....	.....	5,100	17¼	16½	16½	— ⅝
111	63⅛	120	110½	400,000	$100	do pfd. w.w.	....	.....	1,100	119½	118½	119½	+ ½
18¾	4¾	6¾	4⅝	461,000	10	Simms Petroleum Co.	**$1.00	Jan. 27, 36	500	4⅞	4¾	4⅞	+ ⅛
20½	6½	31½	19½	1,100,069	25	Skelly Oil Co.	....	.....	900	22½	21½	21⅝	0
116¼	60	132	116	120,000	100	do pfd.	....	.....	.....	.....	.....	.....	.....
15¾	10⅝	17	12½	31,701,348	15	Socony Vacuum Oil Co.	20c	Mar. 16, 36	33,900	13⅛	12½	12¾	— ¼
116	111	113½	111⅞	764,925	100	S. O. Export Corp. pfd.	$2.50 S.A.	June 29, 35	4,600	112⅜	112½	112⅜	+ ⅜
41⅛	27¾	47⅝	35⅞	13,102,900	N.P.	S. O. California	30c	Mar. 16, 36	12,600	37¼	36	36	— ½
33⅜	23	40⅛	32¾	15,215,677	$25	S. O. Indiana	25c	Mar. 16, 36	9,200	34¼	33	33⅛	— ⅞
32	20	30	25	146,542	10	S. O. Kansas	50c	Oct. 31, 34	100	25	25	25	0
52⅜	35¾	70	51⅛	25,740,965	25	S. O. New Jersey	75c	Dec. 16, 35	24,800	59⅞	57¾	58½	— 1
77	60½	91	72	1,590,406	N.P.	Sun Oil Co.	25cQ	Mar. 16, 36	200	79½	78	78	— 1
121	115½	124	118	100,000	$100	do pfd.	$1.50Q	June 1, 36	40	121	121	121	0
3½	1⅜	6¾	3	966,979	$1	Superior Oil Corp. (Del.)	....	.....	4,100	4¼	4	4⅛	0
30¼	16½	39½	28⅞	9,851,236	$25	The Texas Corp.	25cQ	Apr. 1, 36	14,200	33½	31	31¼	— 1¼
9¼	3¼	15¼	7½	930,570	10	Texas Pacific Coal & Oil Co.	....	.....	35,600	12	9⅝	11⅞	+ 2⅛
15⅞	7⅝	19⅛	14¾	5,998,919	N.P.	Tide Water Associated Oil Co.	15c	June 1, 36	10,000	15⅜	15	15	— ¼
104½	84	106½	100⅝	695,503	$100	do pfd. C. T. V.	$1.50	Apr. 1, 36	800	105	104½	104¾	— ¼
48	26¾	60	52	2,191,823	N.P.	Tide Water Oil Co.	50c	May 11, 36	10	55	55	55	0
24	14⅜	28½	20⅞	4,386,070	25	Union Oil of California	25cQ	May 9, 36	5,000	21⅞	21	21½	— ¼
26½	20¼	31⅝	22⅝	1,200,000	N.P.	Union Tank Car Co.	30cQ	June 1, 36	1,600	25½	24	24	— 1
1⅝	⅝	2⅞	1⅜	759,538	N.P.	Warner Quinlan Co.	....	.....	1,100	1⅛	1⅛	1⅛	0
3⅛	1	5¼	2⅝	431,443	$5	H. F. Wilcox Oil & Gas Co.	....	.....	2,600	4¼	3⅞	3⅞	— ⅛

*New high. †New low. x Ex-div. **Dividends of liquidation. ‡Stock dividend. a Par 33 1/3 florins.
C Paid 25c extra June 1, 36. d on accumulations under special plan.

STANDARD OIL STOCKS ON NEW YORK CURB MARKET

1935 High	1935 Low	1936 High	1936 Low	Shares Issued	Par Value	Company	Current Dividend	Last Div. Paid	Transactions Week Ended June 6 Sales Shares	Week's High	Week's Low	Week's Last	Week's Change
16	6	18	12¼	36,000	$25	Borne Scrymser Co.	50c	Apr. 15, 36	.....	.....	.....	.....	.....
42½	30½	50	39¾	200,000	50	Buckeye Pipe Line Co.	75cQ	Mar. 14, 36	200	41¾	41	41	— 1¾
157	115	124¾	108⅞	120,000	25	Chesebrough Mfg. Co.	$1.50	Mar. 31, 36	300	114	110	110	+ ¼
23¾	10	34¾	19⅞	5,977,873	N.P.	Creole Petroleum Co.	20c	Dec. 31, 35	5,000	27⅛	25½	25¾	— 1½
38	33¼	44	39	50,000	$50	Eureka Pipe Line Co.	$10	May 1, 36	100	40	40	40	— 1
64	44	76½	57	8,968,479	N.P.	Humble Oil & Refg. Co.	25cQ	Apr. 1, 36	4,000	58½	†57	57⅞	+ ¼
22½	15⅜	24½	20	26,919,871	N.P.	Imperial Oil Ltd.	‡25cS.	June 1, 36	11,000	21⅜	20¾	20⅞	— ⅛
22½	15⅞	24⅜	20⅛		N.P.	do registered	25cQ	June 1, 36	200	21⅛	21⅛	21⅛	+ ⅜
6⅛	3⅝	9¼	5½	300,000	$10	Indiana Pipe Line Co.	20c**	May 15, 36	900	7⅛	6¾	6¾	— ¼
39⅜	28	39⅜	33½	14,324,088	N.P.	International Pet. Co.	‡75cS.	June 1, 36	4,300	36¾	36¼	36⅜	+ ⅛
.....	.....	.....	.....	.....	.....	do registered	.....	.....	300	37	36⅝	37	+ ½
10⅝	6¾	15¾	9¼	509,000	$12.50	National Transit Co.	35c	Dec. 15, 34	1,000	9½	†9¼	9½	— ¼
4⅞	3	6¼	4½	100,000	5	New York Transit Co.	15c S.A.	Oct. 15, 34	.....	.....	.....	.....	.....
8	5¼	9¼	5	120,000	10	Northern Pipe Line Co.	25c S.A.	Jan. 2, 35	300	5¼	5¼	5¼	0
107¼	90¼	109¼	104⅛	562,122	100	Ohio Oil Co. pfd.	$1.50Q	Mar. 14, 36	300	108¾	108¼	108¾	+ 1⅜
11	5½	8	5¾	400,000	25	Penn Mex. Fuel Co.	.....	Dec. 22, 33	.....	.....	.....	.....	.....
34½	21⅝	40½	32½	1,200,000	25	South Penn Oil Co.	50c	Mar. 31, 36	1,500	39	37½	39	+ 2
5	3⅞	7⅞	4⅜	100,000	10	Southern Pipe Line Co.	15c	Mar. 2, 36	1,200	5⅛	3⅞	4	— ⅛
56	45¼	60	54	35,000	50	South West Pa. Pipe Lines	$1Q††	Dec. 31, 35	50	59½	59½	59½	— ¼
24	18	23⅜	17⅛	2,604,790	10	S. O. Kentucky	25c	Mar. 16, 36	3,700	17¾	17⅛	17⅛	— ¾
12	7¾	14⅝	12	188,403	25	S. O. Nebraska	....	June 20, 34	100	11½	11½	11½	0
23⅝	11½	36¼	21¾	753,740	25	S. O. Ohio	....	Apr. 16, 34	1,400	28	25½	26	— 1½
99½	89	105	97	120,000	100	do 5% pfd.	$1.25Q	Apr. 15, 36	.....	.....	.....	.....	.....
6	2¼	6¼	5⅜	34,158	25	Swan Finch Oil Corp.	87½c	Mar. 16, 36	.....	.....	.....	.....	.....

*New high. †New low. ‡Imperial Oil Spec. 37½c June 1, 36. International Pet. Spec. 50c June 1, 36.
x Ex dividend. **15c regular; 5c extra. ††Paid $1 extra Dec. 31, 35.

Field Men Transferred

OIL CITY, Pa.—Ernest C. Miller of Warren, Pa. joined the field service division of the Pennsylvania Grade Crude Oil Association May 15, and will cover the Pittsburgh-Buffalo-Rochester area. Mr. Miller is a graduate of Pennsylvania State College and more recently has been employed by the West Penn Oil Co.

Miller takes over the territory formerly covered by James A. Fawcett III who is now in Chicago. Fawcett, in turn, replaces Arthur R. Strubel who resigned from the association to become affiliated with L. Sonneborn Sons, Inc.

NEW YORK CURB BONDS

Week Ending June 6

	High	Low	Last	Change
Cities Serv. 5s '50	81⅛	79⅛	80½	+1¼
Cities Serv. 5s '66	81	79⅝	80½	+ ½
Cities Serv. G. 5½s '42	102	101½	101⅞	+ ⅜
Empire O & R 5½s '42	87⅝	85½	87½	+1½
Gulf Oil 5s '47	104⅞	104½	104¾	+ ¼
Valvoline Oil 7s '37	98½	98½	98½	0

OIL AND ROYALTY STOCKS ON NEW YORK CURB

1935 High	1935 Low	1936 High	1936 Low	Par Value	Company	Transactions Sales Shares	Week Ended June 6 High	Low	Last	Week's Change
1 1/16	3/8	1 7/8	9/16	N.P.	American Maracaibo	3,300	1 3/8	1 1/4	1 1/4	— 1/8
3 7/8	5/8	7 5/8	3 1/4	N.P.	Arkansas Nat. Gas	2,300	6	5 3/4	5 3/4	— 1/4
3 3/4	5/8	7 3/4	3 1/4	N.P.	do A	8,400	6	5 3/4	5 3/4	— 1/8
7 1/2	2 1/4	9 3/8	7 1/8	$10	do pfd	2,700	8 1/4	8	8 1/8	+ 1/4
16 3/4	14 1/2	27 1/4	16 1/2	N.P.	British Amer. Oil coup.	200	23	22 7/8	22 7/8	— 3/8
4 1/4	1 5/8	4 7/8	2 1/2	$1 1/4	Carib Syndicate	5,100	3 1/16	2 5/8	2 5/8	— 1/2
3 1/4	3/4	7 3/8	3	N.P.	Cities Service	24,400	4 3/8	4 1/8	4 1/8	— 1/4
47 1/4	6 1/8	58 1/4	41 1/2	$100	do pfd	3,500	51	48 3/4	51	+ 1 1/8
4 3/8	5/8	6 1/2	3 3/4	10	do pfd. B	100	4	4	4	— 1/4
43	6	54	41	100	do pfd. BB	10	40	40	40	— 1
2 1/8	1/2	4	1 1/16	N.P.	Colon Oil Corp.	7,300	2 3/4	2 1/2	2 5/8	+ 1/8
1 1/2	1/8	5 1/2	3/4	N.P.	Columbia Oil & Gas vtc.	3,300	3 5/8	3 1/2	3 5/8	— 1/4
3	1	5	2 1/8	$1	Consolidated Royalty	100	2 1/4	2 1/4	2 1/4	— 1/4
1 1/2	1/4	4 1/16	1 1/2	N.P.	Cosden Oil	9,200	2 1/2	2	2 1/8	— 3/8
6 1/4	3/4	17	6 1/2	$100	do pfd	700	11 7/8	10	11 1/2	— 1/2
2 1/16	5/8	2 3/4	1 3/4	N.P.	Crown Central Pet.	2,900	2 1/8	2	2	— 1/8
8 7/8	4	12	9	N.P.	Darby Petroleum					
2	3/4	4 3/8	1 7/8	N.P.	Derby Oil & Refg.	600	3	3	3	— 1/8
20	20	49 1/4	25 1/2	N.P.	do pfd					
74 3/4	50 1/4	98	72	$25	Gulf Oil Corp.	3,400	79	75 1/8	75 3/8	— 2 5/8
4 1/4	1 3/8	6 1/4	3 1/4	N.P.	Indian Ter. Illg. Oil A					
4 1/4	1 1/8	6 1/2	3 1/4	N.P.	do B	100	3 1/2	3 1/2	3 1/2	0
3	1 7/8	5 5/8	2 5/8	N.P.	Kirby Petroleum	1,200	4	3 7/8	3 7/8	— 1/8
3/4	1/4	2	1/2	$25	Leonard Oil Dev.	7,600	1	7/8	13/16	0
8 1/4	3 1/2	15	7 3/8	N.P.	Lion Oil Refg.	800	11 7/8	11	11	— 3/4
10 7/8	4 1/2	14 1/4	9 7/8	N.P.	Lone Star Gas	7,500	11 1/2	10 5/8	11	0
19	4	22 1/4	14	N.P.	Margay Oil Co.					
2 3/8	7/8	4 1/8	1 7/8	N.P.	Mexico-Ohio Oil					
3 3/8	1 7/8	4 3/4	1 7/8	N.P.	Michigan Gas & Oil	2,300	4 1/4	3 3/4	3 7/8	— 1/4
3 7/8	7/8	6	3	N.P.	Mid. States Pet. A vtc.	500	3 3/8	3 1/4	3 1/4	— 1/4
13/16	1/4	2 5/8	11/16	N.P.	do B vtc	2,000	1 1/8	1	1	0
1 1/2	1/4	13/16	1/4	$1	Mountain & Gulf					
5 3/4	4 1/8	8 3/8	5	10	Mountain Producers	1,100	6 3/8	6	6 1/8	0
20	11 3/4	23	17 3/4	N.P.	National Fuel Gas	700	18 7/8	18 3/4	18 3/4	— 1/4
3 1/4	2	4 1/2	2 7/8	$5	New Bradford Oil	300	3	3	3	0
4	2	8 3/8	3 3/8	N.P.	North Central Texas					
1/16	1/16	1/8	1/8	N.P.	North European	2,500	1/4	1/8	1/8	— 1/16
12 3/4	9 3/8	15 1/4	13 3/4	N.P.	Oil Stocks Ltd. A	500	13 3/4	†13 3/4	13 3/4	— 1/4
4 3/8	1 1/4	6 5/8	3 1/4	N.P.	Pantepec of Venezuela	14,600	6 3/8	5 5/8	5 3/4	— 1/4
3/8	1/16	1	1/4	N.P.	Producers Royalty	900	1/4	3/16	3/16	— 1/16
3 3/4	1/2	15 1/2	3	N.P.	Red Bank Oil	700	8 3/8	8 1/4	8 3/8	— 1/4
1/2	1/2	1 1/2	5/16	N.P.	Reiter-Foster Oil	1,600	11/16	9/16	11/16	+ 1/16
2 7/8	1/2	2 3/4	1 1/8	$25	Richfield Oil pfd.	400	1 5/8	1 1/2	1 5/8	— 1/8
5	1 1/2	19 1/4	4 1/2	...	Root Petroleum	1,700	15 1/4	14 1/4	14 1/2	— 3/8
45 1/8	8	23	14 1/2	10	do conv. pr. pfd.	100	19	18 5/8	18 7/8	— 3/8
...	...	39	36 1/2	$10	Royalty Corp. pfd.					
2 1/2	5/8	4 3/4	1 7/8	N.P.	Ryan Consolidated	400	3 1/4	3	3	— 1/2
1	1/16	2 1/8	1/2	$10	Salt Creek Consolidated					
7 1/2	5 1/2	10	7	10	Salt Creek Prod.	600	7 7/8	7 1/2	7 5/8	— 1/2
6 7/8	4 3/4	11 1/4	6 1/4	N.P.	Southland Royalty	1,300	8	7 1/2	7 3/4	— 1/4
2 7/8	7/8	5	2 5/8	$5	Sunray Oil	18,300	4 1/2	4 1/4	4 3/8	+ 1/8
4	2	6	4 1/4	$1	Swiss Oil Corp.	5,700	5 1/8	4 3/4	5	+ 1/4
6 7/8	5	9 3/4	4 1/2	N.P.	Texon Oil & Land	1,700	6 1/2	6	6 1/4	— 1/8
...	...	...	...	...	Venezuela Mex.					
2 1/4	1/16	3 1/2	1 1/2	$5	Venezuela Petroleum	1,200	1 3/4	1 5/8	1 3/4	+ 1/8
6 1/8	3 1/2	11	5 5/8	1	Woodley Petroleum	600	8 1/8	7 7/8	7 7/8	— 5/8

*New high. †New low.

OIL DIVIDENDS

Dividends Waiting Payment

Company	Amount	Record	Payable
Atlantic Refg. Co. q	25c	May 21	June 15
Canadian Oil Cos. pfd. q.	$2.00	June 20	July 1
Canfield Oil pfd. q	$1.75	June 20	June 30
Chesebrough Mfg. q.	$1.00	June 5	June 29
do extra	50c	June 5	June 29
Continental Oil	25c	July 6	July 31
Darby Petroleum	25c	July 3	July 15
Gulf Oil Corp.	25c	June 15	July 1
Humble Oil & Refg. q.	25c	June 1	July 1
Northern Pipe Line	††15c	June 12	July 1
Plymouth Oil resumed	25c	June 12	June 30
Pure Oil 5 1/2% pfd. q	$1.25	June 10	July 1
Pure Oil 6% pfd. q	$1.50	June 10	July 1
Pure Oil 8% pfd. q	$2.00	June 10	July 1
Seaboard Oil of Del. q	25c	June 1	June 15
Skelly Oil Co. 6% pfd.†	$1.50	July 1	Aug. 1
Standard of Calif. q	25c	May 15	June 15
Standard of Calif. extra	5c	May 15	June 15
Standard of Ind. q	25c	May 15	June 15
Standard of Ind. extra	15c	May 15	June 15
Standard of Kentucky q.	25c	May 29	June 15
Standard of N. J. s	50c	May 16	June 15
Standard of N. J. extra	25c	May 16	June 15
Stand. Oil Export pfd. s.	$2.50	June 9	June 30
Standard of Ohio pfd. q.	$1.25	June 30	July 15
Sun Oil Co. q	25c	May 25	June 15
Swiss Oil q	5c	June 15	July 1
do extra	5c	June 15	July 1
Texas Corp. q	25c	June 5	July 1
Tide Water Assoc. pfd. q.	$1.50	June 10	July 1
U. S. Petroleum s	1c	June 5	June 15

**Last paid 15c Dec. 14, 35.
†On accumulations.
††Paid 25c Jan. 2, 36.

CLEVELAND STOCK EXCHANGE

Transactions Week Ended June 6, 1936

	Sales	High	Low	Last	Change Over Week
Canfield Oil	...	...	...	...	...
do pfd	...	...	...	...	...
Nat'l Refining	1,756	7 7/8	6 3/4	7 1/2	+ 1/4
do pfd	147	76	73	76	+3 1/2

PITTSBURGH STOCK EXCHANGE

Transactions Week Ended June 5, 1936

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas	25	5 3/4	5 3/4	5 3/4	+ 1/8
do pfd	224	8	7 7/8	7 7/8	0
†Cities Serv.	755	4 1/2	4	4 1/4	+ 1/8
Col. Gas & Elec.	569	19 1/4	18 1/2	18 1/2	— 1/2
Devonian Oil	100	19	19	19	0
Lone Star Gas	2,610	11 1/2	11	11	— 1/4
† do 6 p.c. conv. pfd	131	106	105	105	+1
† do 6 1/2 p.c. pfd.	20	113	113	113	+ 1/2
Mountain Fuel Supply	483	5 1/4	5	5 1/8	0
Plymouth Oil	30	13 3/4	13 5/8	13 5/8	— 3/8
Shamrock Oil & Gas	850	4 1/8	4	4	0
†Standard Oil of N. J.	416	59 5/8	58	58	—1 1/8

†Unlisted.

NEW YORK BONDS

Week Ended June 6

	High	Low	Last	Change
Atlantic Refg. deb. 5s	104 7/8	104 5/8	104 5/8	— 3/8
Houston Oil 5 1/2s	102 1/4	102	102 1/4	+ 1/2
Pan Amer. Pet. of Calif. 6s	46 1/4	46 1/8	46 1/4	— 3/4
do 6s ctfs	45 5/8	45	45	— 1/2
Pure Oil 4 1/4s '50 w.w.	113 1/2	112 1/2	112 3/4	— 5/8
Pure Oil 4 1/4s '50 x.w.	105 1/4	104 3/8	105 1/4	+1
Richfield Oil of Calif. 6s	38 1/2	38	38	— 1/4
do 6s ctfs	38	36 1/4	36 1/4	— 1 3/4
Shell Union Oil 3 1/2s	97 1/8	96 3/4	97	0
Skelly Oil 5 1/2s	98 3/4	98	98 5/8	0
Socony-Vacuum 3 1/2s '50	105	104 7/8	105	+ 1/8
Union Oil of Calif. 6s A	120 1/2	120 1/2	120 1/2	0
do 4s	116 3/4	115 1/2	115 1/2	— 1/2
Warner-Quinlan 6s	30 1/4	30 1/4	30 1/4	— 1/2

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Automotive Notes and Comments

By **JOHN W. THOMPSON**
N. P. N. Staff Writer

DID you ever, in an unguarded moment of weakness, accept an invitation to go on a treasure hunt. You know the game. You start out with an ambiguous sort of two-faced clue, which is supposed to give you a tip as to where to find the next clue, and so on. The game usually goes on far into the night, or at least until the participants drop out one by one from sheer exhaustion.

The game might be a pleasant one except for the fact that the one responsible for organizing the hunt usually strains his sense of humor to the point of placing one of the clues in a county dog pound or under a garbage can behind a house on MacDougal Street.

But what has all this to do with automobiles? Simply this. The search for information about new models in Detroit takes on all the aspects of a treasure hunt. One clue leads to another, and all of them lead up more back alleys than there are cats for. If one wants to find out what the new models will look like, the last place he goes is to the car makers. They are very secretive, and will simply answer your questions with an "Ah, there."

Ford rumors, of course, are sold at all of the Cunningham chain of drug stores at 9 cents each, and during the 1-cent sales you may obtain two Ford rumors for only 10 cents. This past week a special was being run on the rumor concerning a small V-8 motor which Ford may bring out soon and which would reduce gasoline consumption to a point where operators of commercial car fleets would simply stumble over each other to place orders.

Ford, of course, hangs out its usual denial sign. If you are psychic, you can probably see in the smoke that billows forth (smoke always billows) from the Ford factory stacks many changes rounding into shape for the 1937 season. The current Ford-Chevrolet race is finding Ford a little out of breath, with the result that Chevrolet has taken a comfortable lead in production so far this year.

In the face of that situation you may unburden yourself with any thought that Mr. Ford is out playing mush-ball with his 4-star dealers. He is more than likely bending over a drawing board making plans for a 1937 vehicle that will eliminate any possibility of his playing second fiddle in the race in 1937.

* * *

Chevrolet, having already swelled its chest with pride and sales to the point where it has burst practically all the buttons off its 1936 vest, is getting a brand new set of 1937 buttons to burst off next year. Many changes are planned for Chevy, according to our Peeping Tom editor. Chevy is expected to bring out an entirely new engine, as mentioned in our column, and which we mention again now, as you have just noticed.

Mr. Sloan, Jr., didn't say so, but it is understood that the 1937 Chevrolet will have a hypoid rear axle, which is one feature that most of the car makers have been able to agree upon, that is, in addition to their ability to have all makes look alike.

* * *

One car manufacturer reports that the slight foot pressure exerted when the driver of his Zippee-8 slows to a stop from a 50-mile pace, is built up by the super hydraulic brakes into a force sufficient to lift the car vertically to the top of an 8-story building. Your correspondent has a car that raises him off the seat when stopped, but hasn't yet experienced the 8-story sensation. Whoops!

It's conditions like that, added to the startling fact that only 9.4 per cent of the 20,000 Pullman porters are named "George," that keep this country in such a turmoil.

* * *

Recently the Metropolitan section of the S.A.E. held its third annual "proving ground outing and passenger car symposium." This is an occasion in which the automotive engineers muster up enough courage to drive each others cars over a pretty tough stretch of ground and then pass their opinions on how the cars could be improved.

Driver's vision was one of the factors tested. It was found that the minimum distance at which a driver in a 1936 model can see the feet of a pedestrian is 26 feet, and maximum distance is 56 feet.

Among other things it was found that the driver's seat in some cars was made too comfortable for efficient operation of the car. In other words, too much comfort induces relaxation, and often sleep. A good point, but one which the artistic body designer would have difficulty in digesting. Our department - for-the-prevention-of - comfort-to-drivers urges up-pointed tacks as a solution for some dozing drivers.

* * *

Bill Stout, who sees all, hears all, and knows a lot more about the modern automobile and how it should be built than the industry in general gives him credit for knowing, recently spread his gospel before the Cleveland Advertising Club.

Said Stout, "The trouble with the automobile is that it's never been analyzed. What good is a running board, for example, except to make you take two steps where one is enough."

"Why," reasonably questions Stout, "has the engine the best position in the automobile and the chauffeur the best riding seat, while the pay-passengers get all the dust and bumps?"

He visioned the future car having sealed windows and washed air, with the engine in the rear. According to Stout, the wheels will be independently sprung, and brakes will be on them where they belong, instead of on an axle.

"You won't have a gear shift. You won't have a clutch. You'll work a foot throttle and your gears will mesh automatically. You'll be able to go as fast as you'd possibly care to. You'll have more head room, more space, with loose arm chairs and a davenport inside."

What a car an advertising man could "build" for the public, with those specifications as a starter!

* * *

For the statistical-minded, it should be interesting to note that in May 44 per cent of the new Pontiacs sold in the New York district were equipped with radios. That should certainly indicate something or other. Having a radio in the car does give the listener the added satisfaction of being able to turn off programs while driving, as well as at home. Of course, with the car radio, the danger of having a soprano with a knife-sharpener voice come through the loud speaker and crack the windows is eliminated, now that most cars are equipped with shatter-proof glass.

* * *

This is a field day for the statistical-minded. Here's another choice morsel that should be eagerly snatched up and devoured by the Knights of the Figure. Based on their traffic surveys, the U. S. Bureau of Public Roads reports that more than one-half of the mileage of passenger cars is dedicated to business.

Adding the buses and trucks, it is found by the Bureau that 59 per cent of the total motor vehicle registration, paying 65 per cent of the total highway users' taxes, come under the business and commercial classification.

According to the Bureau, the common carrier truck tax is 6 times greater than that of the passenger car,

while the common carriers bus tax is 10½ times greater than the passenger car.

* * *

And speaking of buses, which you will notice we were in the previous comment, here are some figures that will cure any statistician's dandruff. The gross revenues of 26,600 intercity buses in the United States during 1935 exceeded $200,000,000. They operated 1,160,000,000 miles, and carried 552,000 passengers, according to A. M. Hill, president of Atlantic Greyhound Lines. Oh, Boy! Some figures!

* * *

President Roosevelt, father of the New Deal and other plans, has been asking eminent industrialists to his house to dunk crullers and talk over the subject of jobs and how they can be created. Owen D. Young and Walter Chrysler were among those called. Your correspondent did not attend the conference. Yes, it is true he wasn't invited, but he couldn't have gone anyway, as he had to clean out his clothes closet that day.

A special messenger carries the news that the President, that's Mr. Roosevelt, in his talk with Mr. Chrysler, asked what the cost of a modern $600 automobile would be were it made by old fashioned piecemeal methods and without the advantage of the present day production line. The answer was $3500.

Major Company Income Up 63% in 1935

NEW YORK—Aggregate net income of 30 major oil companies in 1935 increased approximately 63 per cent over 1934, while their combined gross revenues were only 6½ per cent above the previous year, according to figures compiled by Carl H. Pforzheimer & Co.

These 30 companies, representing almost two-thirds of the domestic petroleum industry, reported net income in 1935 of $258,542,320, after all charges, compared with $158,282,145 the year before. Combined gross income was $3,754,036,619 in 1935 compared with $3,521,692,015 in 1934.

The four leading Standard Oil companies, Standard of New Jersey, Socony-Vacuum, Standard of Indiana, and Standard of California reported about 52 per cent of the total net earnings in 1935 compared with about 67 per cent of the 1934 total. The four leading independents, Texas Corp., Gulf Oil Corp., Shell Union, and Consolidated reported net income of about 18 per cent of the 1935 total and about 5 per cent of 1934 total.

"These 30 companies," the Pforzheimer report said, "charged against earnings in 1935 a total of $438,240,944 for depreciation, depletion, amortization, etc. compared with $412,525,431 for such charges in 1934. In view of the fact several companies have changed their method of computing depreciation with resultant lower rates, while others which formerly charge against income all intangible drilling costs adopted the policy of capitalizing such expenses, the indicated increase reflects the extensive development work carried on by the producing branch of the industry last year."

Oil companies redeemed about $340,000,000 of bonds, most of which were refinanced at lower rates, either through private and bank loans or by public offerings of new bonds. Therefore, total funded and long term debt of the 30 major companies was $585,111,138 on Dec. 31, 1935 compared with $663,562,876 at end of 1934, a net reduction of $788,451,738. This reduction added to that effected during the previous four years brings the total reduction in long term debt of these companies to approximately $420,000,000 since 1930.

Combined current assets of the group on Dec. 31, 1935 was $2,037,419,709. This included $671,487,752 in cash and marketable securities which alone exceeded current liabilities totaling $531,967,527.

THE OIL INDUSTRY EXCHANGE

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TANK CAR SALESMAN desires to make change. 18 years experience. Wide acquaintance among buyers in Ohio, Michigan, western New York, western Pennsylvania and central Canada. At present employed. Address Box 325.

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With an extraordinary record of sales accomplishment in every phase of the oil industry . . . Who has seventeen years experience in retail and wholesale marketing, which means he knows how to
(1) measure sales possibilities, accurately;
(2) achieve economical distribution;
(3) devise sales and merchandising plans that get the business;
(4) inspire and direct others.

Voluntarily terminating his position as chief sales officer of a nation wide organization August 1, 1936 . . . to join the staff of an independent marketing organization.

He is young (age 42) settled, healthy, well educated and primed to handle the toughest selling job.

References of the highest order.

Address Box 327

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with construction experience, preferably station and bulk plant.

State past experience in application to Box 326, care National Petroleum News.

Miscellaneous

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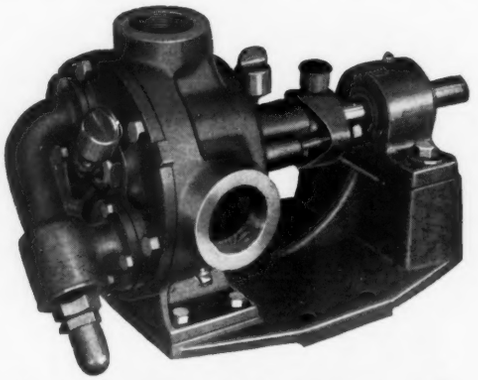

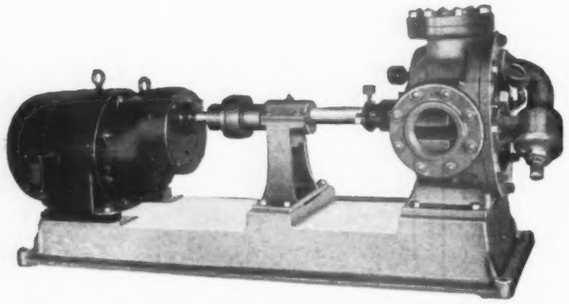

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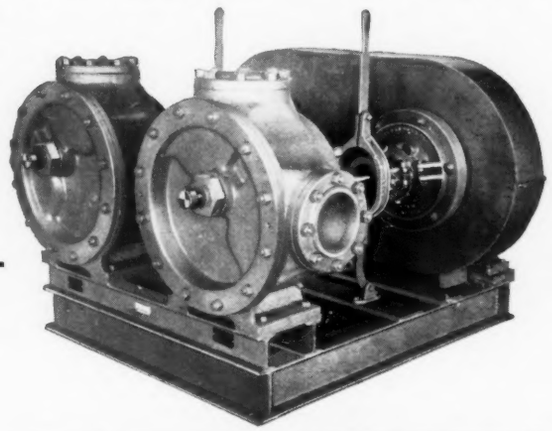

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